NEW-YORK FARMER,

AND

AMERICAN GARDENER'S MAGAZINE.

VOL. IX.] PUBLISHED MONTHLY, AT NO. 132 NASSAU STREET, NEW-YORK, AT THREE DOLLARS A-YEAR, IN ADVANCE. [No. 7.

D. K. MINOR, and GEO. C. SCHAEFFER, } EDITORS AND PROPRIETORS.

FOR JULY, 1836.

[NEW SERIES—VOL. IV.

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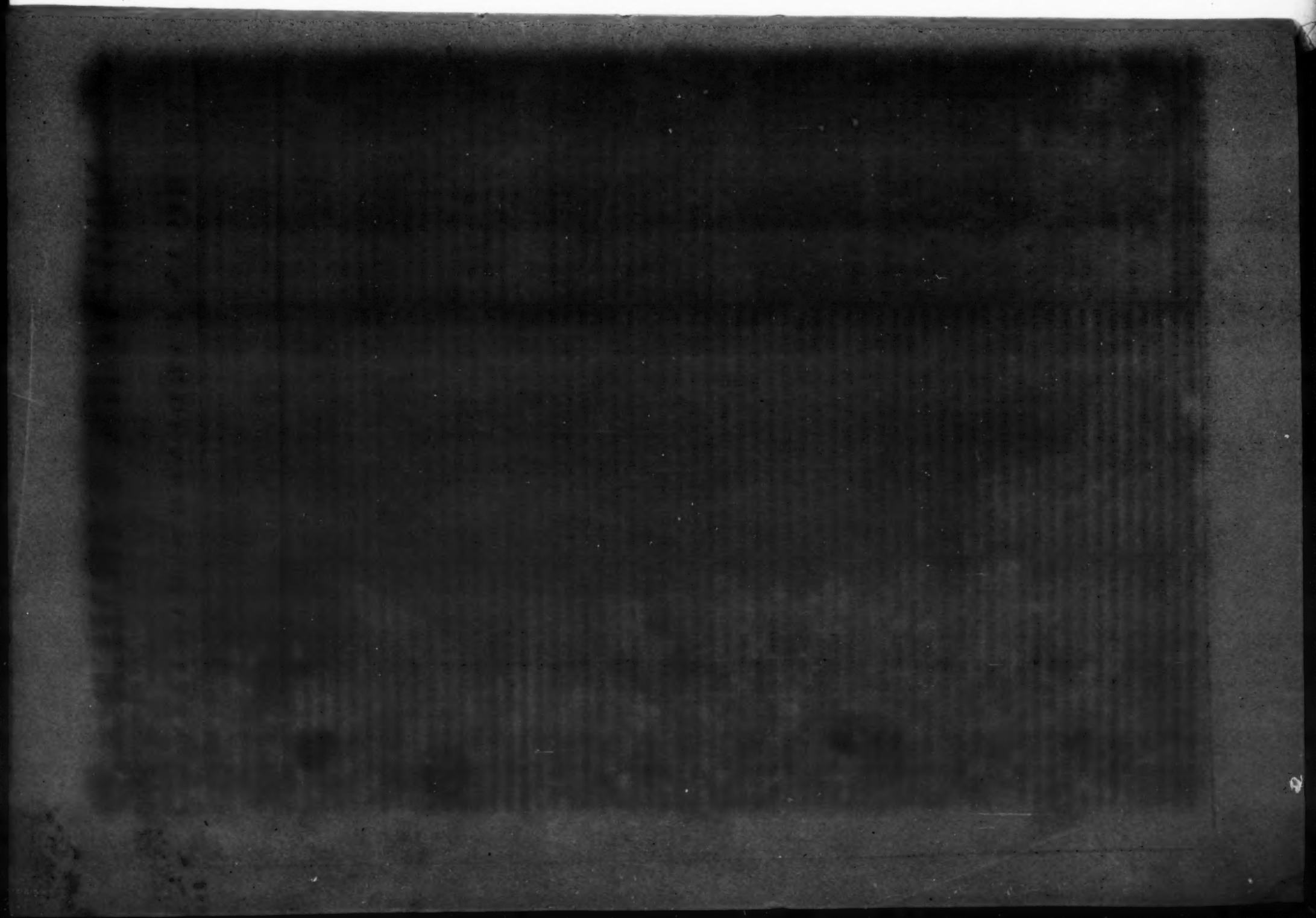

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D. K. MINOR, and GEO. C. SCHAEFFER, } EDITORS AND PROPRIETORS. FOR JULY, 1386. [NEW SERIES—VOL. IV.

NEW-YORK FARMER.

JULY 1, 1836.

GEN. TALLMADGE'S LETTERS.—We make copious extracts from the letters of General Tallmadge, which have been published in the Journal of the American Institute. These letters, although only referring, among other matters, to agricultural subjects, will be found very interesting; and we shall hereafter take the liberty that we now do, to make selections from them, as we may find them of interest to our readers.

JOURNAL OF THE AMERICAN INSTITUTE.—We certainly owe an apology for having so long delayed to notice, and call attention to, this very interesting and valuable periodical. It was commenced in October last, by the Managers of the American Institute, and it has, as we are informed, and as it certainly deserves to do, progressed steadily in its course of usefulness. We wish it, and all other periodicals devoted to useful information, continued and abundant prosperity.

The following question has been asked us and we are desirous to communicate the information desired through the columns of the Farmer—and shall therefore be much obliged to any of our New-Jersey readers who will enable us to do so:

Norwich, Conn., June 24, 1836.

D. K. MINOR:—

Sir—Can you direct me to any person in New-Jersey, who can give me the information requisite for obtaining the marl for manure? I want to know the price—with the cost and facilities for obtaining it and know not where to apply. If you can mention the name of a person, I shall be very thankful. In the meantime if the enclosed possesses any interest, it is entirely at your service. Respectfully,

Your ob't. serv't. J. H.

SILK.—The American Institute have received a beautiful Pocket Handkerchief, on which is the following inscription:

THE
FIRST HANDKERCHIEF WOVEN IN AMERICA BY POWER LOOM,
JANUARY, 1836.
Valentine Silk Company, Providence, Rhode-Island.
CHARLES DYER, JUN., AGENT.
Presented to the American Institute, 9th April, 1836.

NOTICES OF THE SEASON.—The Spring was very backward, and the month of June in New-England, was colder than any June remembered. The wind stood at the north east without variation for seventeen days; and when it changed, seemed to have got so fixed by habit to the east, that at every turn it reverted to its former bearing. May was cold and dry; and until the last of June the amount of rain which had fallen was small. In June we had in some places severe frosts; and in some of the high lands in Massachusetts the hills were in one case whitened with snow. The general impression is that, on account of the extraordinary cold of the winter there have been unusual accumulations of ice in the Northern Atlantic. Vessels coming from Europe have spoken of meeting with immense quantities; and the east winds blowing over such extensive fields of ice come to us, sharpened with an extraordinary severity. Owing to the long continued draught and cold, corn came up very badly; much of the seed rotted in the ground; much of it was replanted; we know some cases, in which there were as many as four plantings; it now (July 12) remains small and unpromising, in some places almost desperate. It is a common proverb among the farmers that July makes the crop of corn;—we must say then in this case that July has a great deal to do and but little time in which to do it. Rye in general promises favorably; of wheat we cannot speak with confidence. Barley is uncommonly luxuriant, though its perils from the worm are not yet passed. Oats and potatoes bid fair to be abundant; a cold and damp season are favorable to them.—Grass on moist lands and lands highly enriched, and on lands watered by the inundations of rivers, which owing to the great accumulations of snow were higher and longer continued than usual, will give an ample yield; but on high and thin lands, exposed to suffer from draught, it will be very short. The crop of broom corn, into the cultivation of which many farmers entered very largely, enticed by the high prices obtained for brooms, has suffered much from cold and draught, and a good deal from the imperfection of the seed, much of that, which was raised the last year, having been badly ripened. We do not predict, however, any scarcity of the products of the earth. Our country embraces such an extent of latitude, and consequently such a variety of climate and soil that crops, which are deficient in some places are readily supplied from others; and the facilities of intercommunication are multiplied to such an extraordinary degree, that our whole domain may be regarded without a figure as one great national farm for the supply of the common family. Divine Providence likewise multiplies the compensations in nature. When the crops which require a warm season to mature them fail or are short, those crops to which a cold season is favorable are in abundance; as in the cold summer of 1816, which no farmer, who lived through it will easily forget, when the crop of Indian corn was almost entirely cut off, potatoes, oats and wheat were plentiful; and the potatoes more farinaceous than in a hot season.

The prices of all agricultural produce are, exorbitantly high; and, while the currency continues in its present state, they probably remain so. Grain has experienced a small decline; but will probably soon go up again to its former prices. Beef and meats of every description remain at their maximum. Wool and cotton are in advance of last year's prices. Labor of every description is every where in demand and amply paid. In some parts of the country, works of public improvement are suspended for the want of hands to execute them. The singular phenomenon of large importations of bread stuff from Europe has been seen the last season. A great amount of wheat and oats have been brought to the country from abroad; and, what may surprise our farmers, a good deal of Indian corn has been imported from Italy and hay from France, and sold here to advantage. These are singular facts and afford great encouragement to that industrious, laborious, and persevering class of men, who look to the earth for the honest rewards of labor; and are willing, and not only willing but happy, to get their bread by the sweat of their brow. H. C.

AGRICULTURE IN RHODE ISLAND.—A short visit to Newport and Bristol, in Rhode Island has given me a favorable impression of their husbandry; in some cases, I am half disposed to call it, gardening. Rhode Island, properly so called, on which Newport is situated, lies on the eastern shore of the State to which it gives it name, and stretches from south east to north west a distance of about fourteen miles, and with an average width of three miles. It is surrounded by deep water; and has in general a bold rocky shore with very little

alt marsh, and as well as I could judge no swampy ground in the interior. It lays in the bay like a large whale reposing on the surface of the sea, without any great elevation, but gradually rising on its eastern and western sides longitudinally to an agreeable and beautiful height in the centre. It is almost entirely destitute of any other than ornamental trees; but there are a good many of these, though we regretted among these to see that the common button wood predominated, as it is almost as great an impoverisher of the soil as the Lombardy poplar. The moisture of the climate gives to the landscape that bright and beautiful green, which is said to characterize the British Islands, and which the Emperor Napoleon so much admired.—The island seems based upon a rock, a kind of slaty granite; and the water, which is easily obtained, is of an excellent quality.—In the north western part of the Island, anthracite coal abounds; but the coal is not of so good a kind as to encourage further operations, and the mine, at least for the present, is abandoned. In general the soil is a deep dark loam, in the southern parts more mixed with sand than in the northern, comparatively free from stone; and although it produces good crops of Indian corn, yet it seems more favorable to grass, oats, and potatoes. The fences are in general of stone, high and well built; the fields, a rare thing in New England, dividing generally into rectangular lots; and in the southern parts of the island are fertile, richly manured, and under high cultivation. The farmers are most of them the independent possessors of the soil which they cultivate; and the houses and buildings generally in the country are remarkably neat; some in the neighborhood of the town are tasteful and elegant. Without the town I do not recollect a single house that was in a state of dilapidation or that looked like the abodes of intemperance and vagabondage. We may reasonably infer that, there being among the inhabitants a large proportion of Quackers, who are ordinarily models of neatness and good domestic management, has had in these respects a favorable influence. The climate, to those who like the proximity of the sea, is delightful in the warm months; it is milder in winter, and it is much cooler in summer than places more inland.

The stock kept upon the island are principally sheep; and these chiefly of what are called the old fashioned merino, with very little mixture of Saxony; the average yield of fleece from three to four pounds; and bringing in the market from fifty to sixty cents per pound. On land averaging in value one hundred dollars per acre, and with hay at fifteen to twenty five dollars per ton, though the price in years past has been about ten dollars per ton, sheep husbandry would seem hardly to be profitable, though they say that "sheep pay better than any other stock;" as indeed well it may, as who would think in such circumstances of raising meat cattle to advantage, when the value of a yearling would not be so much as that of a calf six weeks old.—They are wise in desiring to consume all their hay upon the place, for although the farms on the sea shore are favorably situated for procuring sea manure, yet in the interior they require all the manure they can make on their farms. I got information of no considerable dairy farms.—Many swine are fatted on the island; and a very large amount of poultry, especially geese and turkies, raised. For there a ready market is always to be found; but with what profit they are raised is another matter. As long as the geese are fed in the highways, the expense is nothing; but whoever undertakes to fat either geese or turkies at the corn crib, or, as some permit them, to feed themselves among the standing corn, we advise to count the cost.

We saw extensive fields of oats, which appeared highly promising; and some most luxuriant fields of barley already suffering from their own weight. The crops of barley have for several years been cut off by an insect, whose depredations are similar to those of the wheat worm, and for which no remedy has yet been discovered. The crops of corn sometimes give fifty and sixty bushels to the acre, but the average yield is about thirty. The grass, principally herds-grass and red top, which is a favorite grass in Rhode Island, with very little of clover, under the best cultivation will yield two and a half tons to the acre; though this would be a very high average. As far as my own observation goes, the red-top, though a most excellent hay for every kind of stock, never yields a great weight of hay to the acre. The average crop of potatoes is about two hundred bushels to the acre. Rhode Island heretofore has been remarkable for the quality of its potatoes, A kind called the Elam potatoe, a long, white, kidney potatoe, taking its name from a gentleman who first cultivated it here, was a long time celebrated; but has given place to the pink-eye and the Chenango. A very great crop here, and one more cultivated at Bristol, is the onion. The cultivation is said somewhat to have declined on this island; the crops for some cause not having yielded so well as formerly; but at Bristol, about fifteen miles above Newport, it is pursued very extensively and successfully. The produce of the onion crop last year in Bristol, I have been credibly informed, exceeded thirty thousand dollars. The red onion is that which is principally cultivated, being the greatest favorite in the West India market. The cultivation of the crop is simple and well understood. A good crop will give from four to five hundred bushels. The cost of cultivation very much exceeds that of corn; some give it as their opinion three times as much labor is demanded on an acre of onions as on an acre of corn. They are subject to few casualties, provided the seed is good; and the seed is never safe, if more than one year old. It is a singular feature in the habits of this plant that it bears planting year after year, without any diminution of the crop, on the same ground. I saw one field of two or three acres on which onions had been grown every year for more than forty years, and with equal success. The land pays for manuring well; though they are not particular as to the kind of manure applied, prefering however a rich compost to green manure. The large sized onions are put in barrels; the smaller sized are strung in bunches; the weight of the bunches being about three and a half pounds. The land is marked out in rows about one foot wide with a machine resembling a boy's sled with four runners, making three rows at a time, one runner being kept in the fourth track of the last marking.—The seed is then dropt and covered very slightly by hand in hills about six inches distant in the row; and four plants are generally left standing in each hill. The great business afterwards is to hoe them, and keep them free from weeds. Two kinds are cultivated; an early and late kind. The former are usually ripe in August, and sent to market as soon as may be after ripening. The crop is upon the whole of easy and profitable cultivation. I was at the house of one farmer on the island who keeps about one hundred sheep, and who the last winter applied his onions, which were too small for the market, to the feeding of sheep; and he adds, with advantage to the sheep; a use of onions, I venture to say, altogether novel. The advantages of obtaining sea manure both at Newport and Bristol are very great; but particularly at the former place. Vast quantities are constantly driven upon the shore by winds and tides; and much is gathered in boats from the rocks. It is used in compost and as top-dressing. The eel grass is seldom used, but in compost; and principally as bitter for swine; the rock weed has great effect, when applied as top dressing on grass ground. Common beach sand is likewise used as top dressing and in compost with advantage. I have myself tried it in moist cold soil, in the hill for potatoes, with success. But one of their principal manures is the "Manhayden" fish; a small fish in appearance resembling the herring or alewive. These are taken in great quantities, in large seines; and are sold at the rate of fourteen cents per barrel for manure. They are most frequently spread broad-cast among the growing corn, and left undisturbed upon the surface; or they are carried into the barn yard and mixed in compost. Their effects in either case are said to be very powerful. The odor of them, while rotting in the field, is most certainly powerful.

It is obvious that I could give but a cursory view of the agriculture of these places. But I can say with propriety that their agriculture, though admitting many obvious improvements, is highly respectable; and the island, from its remarkable salubrity, the fertility of the soil, and the beauty and many advantages of its situation, seems destined to become a favorite place of residence for industrious and enterprising cultivators and improvers of the soil, and of luxurious resort to the fashionable and wealthy. The island contains an inexhaustable supply of excellent building stone; of which two large cotton factories, propelled by steam, have already been erected, and others are in embryo. The population of Newport at present is about eight thousand; there is every encouraging prospect of its large increase. The projected and indeed half finished railroad between Providence and Stonington, in Connecticut, seems likely to divert the travel between Boston and New-York into that direction.

H. C.

July, 1836.

THE HARLEIAN DAIRY—No. III.

BY H. C.

I proceed now with some further account of the Harleian Milk Establishment, which seems to me instructive and in various respects useful. What Aiton says in reference to this subject, is sufficiently emphatical. "Milk, which is one of the most wholesome and nutritive species of food, is too apt to be neglected, where luxuries prevail; and many have rejected it from a belief that it was seldom obtained free from impurities. The atmosphere of a byre not duly ventilated, and especially in the stenching lanes of a large town, the nastiness of the cows, want of cleanliness in those who fed and milked them, and the nature of the milk itself, so apt to become impregnated with foul air and every impurity, have often driven people, who entertained a due sense of cleanliness, as well as those of delicate constitutions, who most needed that excellent restorative, from the use of milk with disgust." Every one who has given attention to the subject, and especially, who has had any experience in it, must know how perfectly true and well founded are these remarks. Indeed the filthy and offensive manner in which milk is often served, is extremely disgusting to delicate and not unreasonably fastidious tastes; often the greasy scum of half cleaned pans is seen floating on the surface; and communicating an exceedingly disagreeable taste to the liquid; and more often both the milk and cream are rendered perfectly nauseous by the taste of the dirt from the cows tail or udder which is suffered to drop into the pail; and this too, permitted without concern by persons who think themselves not deficient in neatness, under the pretence that the strainer will effectually remove every impurity. The individual then, who will furnish this desirable, grateful, and most nutricious beverage in a pure and cleanly state, deserves to be regarded as eminently a public benefactor.

Harley, as must have been seen from what has already been related, evidently and most successfully made this a prominent object. I shall proceed now to detail other particulars connected with his establishment, which may be useful or curious.

One particular rule was rigidly observed. The cows were fed with great exactness and especial care was taken not to give too much to any one at a time. This as far as I have observed is a method not much attended to by farmers in general; but to save time, cattle are often furnished with large quantities at a time, in which case much of the provender goes to waste; the animal becomes surfeited and loses his appetite by excess, and the food being blown upon is rendered tasteless or offensive. In preparing steamed food the vessels was generally filled in the afternoon at from five to six o'clock; and if twice filled in a day the usual morning hour was from eight to nine. The cut provender, sliced turnips and potatoes were put into the vessel in layers; but the greater part of the turnips were put upon the top, that the juice might descend to saturate the hay, &c. When common turnips were used, the steam vessel was heaped, as these decreased much in bulk; whereas the yellow kind was little reduced by steaming, and the Swedish none at all. We believe that this statement of Harley may be in a great measure relied upon; but perhaps not to the extent which he states. The common white turnip is a very light substance; the Swedish much more solid; but I have found little difference either in keeping or solidity between the best yellow Aberdeen turnip and the Swedish. Turnips, he adds, whether given raw or steamed, ought always to be sliced, which will enable old cows to eat them, who could not break a whole turnip; and besides there is then no danger of the animals choking. When sliced they can be boiled in a short time and mix more easily with the draff, &c.; but when given in a whole state, a longer time is required to steam them; and they also retain the heat much longer, which sometimes burns the cows when feeding. "Steamed food produces more milk and makes the cattle fatten sooner." I know of no very accurate experiments by which it has been decided that cooked food will produce more milk than raw food. It is extremely desirable to ascertain this point, as conjectures or theories on this subject are not to be relied upon. As it respects the fattening of animals, the experiments conducted under the patronage of the Highland Agricultural Society, and which have been recently given to the public, have demonstrated that steamed or cooked food has no advantages in fattening cattle over that which is uncooked, equivalent to the trouble and expense of preparation. In respect to swine, however, the result is wholly different.

The extraordinary attention paid to cleanliness in this establishment cannot be too much observed or commended. After the mid-day feed was given, the milkers went to their respective divisions with a currying comb and hair cloth, and curried and rubbed every part of the cows from the forehead to the tail and heels. The tail of the animal was kept sheared close, so that no dirt might fall in the pail. Each milker had a milking pail, a large tin vessel for receiving the milk of their lot, with a towel and stool; every two milkers had a common pail for washing their hands, the cows' udders, &c. and a mop for washing the floor. This pail was taken charge of by each milker one day alternately; with the towel they wiped the udder carefelly before beginning to milk. The milkers were generally women; each milker averaged eight cows in one hour, and milked from twelve to fifteen cows. An excellent arrangement was made to secure the perfect milking of the cows; a point of the very highest moment. Thus the milker of No. 1, stripped or took the aftering of No. 2, &c; and a small premium was given weekly to the milker who produced the greatest quantity from stripping; this induced each to be careful in milking their respective lots as completely as possible. The milkers changed their respective lots of cows with each other weekly and by rotation, which showed who were the best milkers.

Potatoes, distillers' grains, and wash produced the greatest quantity of milk, but the quality was thin and poor; on the other hand green clover, rye grass, clover hay, yellow and Swedish turnips, beanmeal, oil-cake, &c. produced rich milk and a fair yield. Too much rich food may be given; or rather the nutritive parts of food may be given in too concentrated a form. Even with an abundance of rich food such as meal, &c. without a due proportion of straw or hay, cattle will inevitably lose their appetite.

It was a very important matter to prevent the milk from being adulterated before it reached the customer or consumer. The best method of doing this, Harley says, cost more study than all the other departments of the establishment; although it was only necessary to ascertain how to admit air, to allow the milk to run off by the stop cock, and to prevent water from being put into the milk. A simple method was discovered, which completely answered the purpose. There were three small tin tubes put betwixt the handle of the lid of the milk vessel, and the lid itself; these afforded additional strength to the handle and prevented it from bending when another pitcher was placed upon the top of it, which was often the case when the milk was

drawn off. The two side tubes were soldered to the lid and the under side of the handle, the centre tube was put down through the lid, and was soldered close around; and the upper end of the same tube was also soldered to the under side of the handle except a small point about one sixteenth of an inch, which was left open; this admitted a sufficient quantity of air through the tube to allow the milk to run off, and at the same time it effectually prevented the admission of water. Previous to this simple discovery, Harley applied to many to learn if they were acquainted with or used any plan for checking the adulteration in question; but it was admitted by all that they had never devised any scheme that would prevent their servants from putting water into their milk (if they were so disposed) as the hole on the top of the milk barrel or vessel from which a pin was taken to admit the air, always suggested the facility of introducing water.

Every morning and evening at this establishment, as much new milk was set apart in the milk house as was necessary for the cream customers. This was a regulation of some importance, because the cream was sold at six times the price of new milk. In order to raise the cream completely, it was found necessary to put a little cold water into the milk set apart for the purpose; if one quart of water was added to twelve of new milk, it would produce one quart of rich cream, and twelve quarts of good skim milk, which would be equal in value to twelve quarts of new milk; so that the only loss in selling skim milk and cream, instead of new, was the extra trouble.—When any cream, or new, or skim milk was left over, it was put into the churn house in a vessel by itself, and not mixed with the other milk, for fear of disturbing the coagulation.

It is the practice with many to place the churn in some corner of the house; and such milk as can be spared from other purposes, or as may be left over on ordinary occasions, whether new from the cow or cold, is thrown into the churn; and when this receptacle of all sorts is full, the milk is churned. When milk is thus collected, that which is first put into the churn or vat becomes clotted or sour; if the coagulation remains until it is churned it does not injure the milk; but if more milk be thrown into the vessel before it is cooled, the sour and new milk ferment, and if that operation takes place before churning, the fermentation will continue in the milk; and the butter milk will go into curds and whey after churning. Whenever milk is added to the store, the coagulation is broken and the fermentation is renewed. It is absolutely necessary that milk should become sour and clotted before it will churn to advantage; but the fermentation should not be allowed to proceed too far, otherwise the milk will become mouldy and putrid; and whenever that is the case before it is churned, the butter has a bad smell and color, and the butter-milk becomes unpalatable and unwholesome. While it is proper that the whole milk should become sour, and be coagulated before churning, yet it should never be allowed to ferment so long as to run into curds and whey; otherwise both the butter and butter-milk will be unpalatable. After the operation of churning has commenced, a little hot water should be added gradually until it reaches the temperature of about 75° Fanhrenheit; but it should never be overheated nor churned too hastily, otherwise the butter will be soft and of a white color.

It cannot be too often repeated, that cleanliness in every possible respect is the life and soul of every branch of a dairy, from the milking of the cow to the last process of making butter and cheese; and the slightest deviation from cleanliness cannot fail to be highly detrimental. It is not the practice in many parts of Scotland to put any salt into butter that is sold new; but it is a great improvement to mix a little with the butter, or to dissolve a quantity in cold water in which the butter is washed after it is taken from the churn.

The quality of the butter-milk sold in Glasgow is generally very good. It is a very wholesome beverage, and may be turned into a luxury by putting a quantity into a linen bag, and allowing the whey or serum to drop out; then to mix what remains in the bag with a portion of sweet cream and sugar. This is a dish worthy of being placed upon the most luxurious tables.

Care in the selections of cows for the dairy, was deemed by Harley of great importance as obviously it must be. He, after repeated experiments, gave a decided preference to the Ayrshire breed of cows. The cows were generally brought when near calving, which prevented the barbarous practice called hafting, or allowing the milk to remain upon the cow for a considerable time before she is brought to market; this base and cruel custom (for which a heavy penalty ought to be legally inflicted) is always pernicious to the cow, and in consequence of it she seldom recovers her milk for the season. He had one cow, which gave forty quarts of milk per day: wine quarts it is presumed. This is an extraordinary quantity, but need not be doubted. In conversation a few days since with a very intelligent Scotchman, he stated that he had known a cow, which yielded forty quarts of milk per day. The Ayrshire breed of cows we believe is not highly enough appreciated among us. From the best information that we have been able to obtain, we are fully satisfied that they are far the best dairy stock known in England. They are rare in this country. One or two that I have seen have been superlatively fine animals. Their dairy properties, as far as we can learn, have not been improved by crossing with the improved Durham Short Horns.

Harley's remarks upon the treatment of cows are well worth preserving. Cows should never be struck or scolded at, but spoken to and dealt with in the kindest manner; when struck they will either attempt to kick, or throw themselves down. By persevering in kind and gentle treatment it was found that in a short time the crossest cows became peaceable and easily managed, whereas by a contrary plan, and if not curried or clean milked, they became irritable and restive, and uniformly got worse instead of better. If there are any exceptions in cows thus treated, they must be very rare; indeed there are few of the wild and ferocious animals but may be tamed by kindness. This may be set down as a universal rule; and as far as our own observation extends, as strongly applicable to the human as the brute species.

From the Journal of the American Institute.

GENERAL TALLMADGE'S LETTERS.

The correspondence of General Tallmadge with the American Institute, continues to possess much interesting and useful matter. The letters from which we extract in our present number contain much valuable information on the culture of Silk, to which we beg to refer our country readers more particularly. His first letter is dated at Rome 3d, January last.

He says:—"I fear you may have misunderstood my last letter, and suppose I intended to speak of the particular Roman cement (so called) which is imported and used in our city. The Romans used two kinds of cement in making their walls: the one the common mortar, and the other the peculiar cement. The one is composed of fine materials, and used for the troughs of their aqueducts. An aqueduct near Tivoli, covered with stone, and laid and pointed with this cement, is now to be seen, after perhaps two thousand years, and is so firm that it will as soon break through the stone as the cement. I intended, however, to speak of the common mortar, used for brick or stone walls. Many of the monuments, as well as the piers and butments of bridges, were made with marble or cut stone as a casing, and the inside was filled up with fragments of stone, round paving stone or broken brick, filled in with common mortar, or, as I believe masons call it, grout. The casing, or cut stone, has, in most instances, by modern cupidity, been taken off; yet the inside remains standing, or, if fallen down, even yet continues unbroken, in large masses like rocks, and which now can only be broken with great labour. It is worthy of inquiry—how long the butment of a bridge, or any brick work, in our country, with the outsides or casing taken off, would stand exposed to weather and our climate? Do we not too often make such public works not only with insufficient mortar, but also often fill in their centres with common dirt and loose materials, fit only to receive mois-

ture, so that the work soon falls down under the influence of our severe frosts?

This subject is worthy the consideration and correction of our legislature. Perhaps our corporation may more promptly give it their attention. The British parliament have set an example worthy of our imitation. They appoint a commission to investigate any subject of public interest, so that they can legislate more understandingly. The extension of our internal improvements, as well as other buildings, requires that they should be more permanently erected, and the end obtained by inquiry, or other means, will promote the interests of the state.

There is a growing attention on the Continent to the concerns of America, which have hitherto been unknown, or but little noticed. Many of the American newspapers are found on the Continent, and, although not always as discreet in their matter as might be desired, they often impart useful information, and are now much sought after here. The fame of our naval architecture, but more especially of our steamboats and railroads, has spread over Europe, and made our country more advantageously known, than all the other circumstances of our history. Our achievements in these points, and in domestic manufactures, are much spoken of, and furnish many inquiries, and tend greatly to throw light into Europe, and to liberalize its institutions. Steamboats are shortly to be put upon the Danube, and the other principal rivers of Europe, and public attention is universally turned to America, as greatly in advance on these important points.—Whatever has heretofore been the case, Americans are now as much respected and noticed here, as travellers from any other country—and our institutions are more inquired after. A file of the "New York American" is here, giving an account of the exhibition of the late fair of the American Institute, which has attracted considerable attention as an exhibition of the progress of mechanic arts. Although it is the prineiple of America to offer a full reciprocity in trade and manufactures, and only when this is refused to encourage her own by protecting duties, it is worthy of observation, that France and England are now furnishing a supply of books to prove the impolicy of this American protection, while the practical comment of this free trade learning is felt by travellers in crossing the boundaries of the governments and petty principalities, by repeated searches of their baggage, and the stoppage of articles of manufacture of other kingdoms, and which are in most cases totally prohibited. A bottle of Cologne, in a lady's trunk, is said recently to have incurred a fine of thirty dollars on crossing a dividing line; and all articles of jewelry, unless actually worn at the time, cannot pass with impunity from one Italian state to another; and above all, any Swiss or Italian manufacture of this kind must not enter France, the very source of free trade and anti-protection principles.

I have happened to see several of the *fairs* in England and on the Continent; they are different from ours, as intended not so much for exhibition of fabrics, as for actual sales of the articles by samples; their goods are exhibited in stores and booths, temporarily erected in the streets. It is essential that the predilection of foreign manufactures should be overcome in our country. From all the observation I have been enabled to make, I have confidence, that in most articles the manufactures of our city and country have arrived to such perfection, that they might now be exhibited, without fear of comparison, with like articles of foreign production.—Would it not be well, at some future fair of the Institute, to provide for an exhibition, in contrast of the foreign and domestic manufactures—and perhaps even to allow temporary booths, during the fair, to be erected for actual sales? This subject seems to be worthy of consideration. The people of Europe are divided into the governors and the governed, and the line of distinction is more strongly marked than you can well imagine; and it is almost incredible to notice, how little the arts and improvements of the present age have been applied, on the Continent, to the concerns and comforts of common life. The condition of society may be inferred from the fact, that there is scarcely a side-walk in the streets of any city on the Continent, saving perhaps some modern ones in a few places in Paris. It is said Russia has lately, and since the Emperor visited England, made side-walks in two streets of St. Petersburgh as an experiment. I have not seen one in any town on the Rhine or in Switzerland, or scarcely in Italy;—so little is the regard paid to the convenience of humble condition, while titled greatness can roll in carriages, protected by numerous attendants!—A like parallel could be shown in the absence of very many of the comforts of life so common to the American people. We have great cause to bless our happy lot, while we strive to select, from Europe, any benefits which may be transferred and added to our present stock. The charities of Europe, so much boasted of, are worthy of our study, and are generally more to be avoided than to be adopted. Those of the Continent are more in the nature of hospitals, than as almshouses for the poor. The anatomical museum of Edinburgh surpasses any that I have seen. The surgical preparations at Glasgow are excellent; but, as a whole, perhaps, London equals either, and certainly surpasses those on the Continent. Of Paris I do not speak, as I have not yet seen it. The medical preparations and the hospital at Rome, are very respectable. At Geneva great regard is had to the ventillation;—so too at Milan, which affords one of the best formed buildings I have seen, and where there is provision for twenty-five hundred beds, of which fourteen hundred were then occupied, in addition to out-buildings for contagious diseases. Florence has a respectable establishment with anatomical preparations in wax-work, more extensive than any I have seen, and with wonderful perfection. This is worthy of imitation. But at Florence is an institution, like to almost every other city on the Continent, and more extensive, for the reception of infants abandoned by, or without parents: windows are provided, by the doors, in which infants can be placed, and a bell rung, so that they may be received, and the person handing them in not be discovered. It is here against the policy to have any of the scrutinizing inquiry, so common in our country, after the parentage of infants, lest it might fix a stain upon monastic purity or titled excellence!—My friend, F. A. Tracy, visited this institution with me, and we were informed, by its principal officers, that they then had 7,000 infants under their care! And we saw so much as to credit the statement.—Begging, in Ireland, is almost universal: on the Continent it is a distinct profession, followed as a calling; and in many places it is greatly overdone, especially at Rome, and said to be worse at Naples. The result of my observations induces me to approve of the hospital charities—greatly to disapprove of those infant establishments, and very much to doubt the expcdiency of charities for the *healthy poor*. But, instead of leaving them to infest the streets, houses of correction should be provided, and as often as alms are asked, it ought to be followed by an inquiry, and the applicant either to receive care and ample provision for his wants, or be sent to a house of correction. London is now trying this experiment in her principal streets, and has affixed notices requesting persons not to give alms. Observation upon the Italian cities will show the pernicious consequences of street begging. The *cold victual* beggars in our city are a fruitful nursery of vice, and will soon grow into an uncontrolled fraternity.

I had intended to have written more, but have not time. We start for Naples in the morning.

The next letter, in order, is dated Naples, January 26, 1836.

"The last mail brought us the public prints from Paris, announcing the melancholy fire at New-York, on the 16th of December. It has produced a gloom upon every American face here, and even awakens a correspondent feeling in other foreigners. I have full confidence, however, that the elastic power of our national character will soon rise above this calamity; 'though severe and extensive—it remains for us to profit by the misfortune.'

I have now been nearly a year in European cities, and have not witnessed, or heard of, a *single fire!* The American Consul, here, informed me yesterday, he had not seen a fire in Naples in eight years!—The walls of the first and second stories of the houses are thicker than ours; and in this we should improve in our city. The stairs are uniformly of stone, and the roofs of tile, and, most generally, the window frames are of stone. The result is, the materials being less combustible, there are fewer fires and less destruction. The *tiles*, at Rome, are *flat*, with an edge raised on each side, nearly half an inch, and narrowed down, so as to lay into each other like shingles.—They are about twenty inches wide, and thirty long: a small rafter, under each edge or course, is laid in mortar; then a semi-circular pipe, laid in mortar, over the double edge or course. It is an excellent roof, and much better than any *tiled* roof I have ever seen with us. The same formed tiles are now found in excavating Pompeii, with the

addition, oftentimes, of a moulding or cornice for the eaves of the house. Since the improvements in making our brick, with anthracite coal, such large tiles might well be made for roofs: but, if tin, or zinc, is preferred, I do wish *cast iron rafters* could be used in all and either case. It would not increase the expense, but would add to the safety, and lessen insurance. If cast, one side flat and with an upright centre, it would make them light, and yet of sufficient strength, and afford a groove for the tiles to rest on; the double courses, thus, to be covered by the half pipe; and when pointed inside would be tight, not only as against water, but also wind or snow. The same rafters, with sides reversed, would suit a tin or zinc roof. I have before explained to you, I believe, from Dublin, the importance of cast iron for frames and rafters. The floors, in Italy, are uniformly of tile or stone; if we, however, continue wooden floors, we shall yet have accomplished much in adopting iron rafters, and thus reject every thing combustible in our roofs. By making stone stairs, and stone or iron window frames, much of the combustible materials now in use with us will be rejected, insurance become less, and fires more easily controlled. It was an ordinance of ancient Rome, that the *basement*, and *first* and *second* floors of houses, should be without wood, and with arches; and it is these arches which now support the ruins.

The climate here is delightful—like our best October. *There* is little, however, for inquiry, as to improvements useful for our country. The government, or the people, would not suit us, and we perhaps would as little suit them. You can have no idea of the wretched condition of the population, and the state of general intelligence in this city. That class of active, elastic, and intelligent people which occupies our streets, is unknown here. No mind, no information, no inquires or interchange, mark this people; servile grovelling for a miserable subsitence only is aspired after!"

His next letter is dated at Naples, 5th March, 1836.

"Since I arrived in this land of fame and fable, I have not been unmindful of the culture of silk, so justly a subject of great and growing interest to our country. I have visited several manufactories of silk. It is not the season for seeing the silk worm, but most of its progress in other respects I have been able to see. I have made many inquiries in hopes of obtaining useful information. Finizio is an extensive manufacturer of sewing silk; he makes about 3000 lbs. a week, which is most sent to the New-York market. He is an intelligent man, and I found him willing to answer my inquiries; as also were several other establishments, and which mostly confirmed his statement. The sewing silks of Naples are mostly made from the silk grown in *Calabria*, where the worm is fed principally upon the *black* mulberry, and which makes the strongest and best for sewing silk. Finizio stated that the worm fed on the black mulberry made the strongest thread; *that* on the *white* mulberry, finer and better for fabrics; *that* on the Chinese mulberry still finer and more delicate.—When asked if the cocoon from the Chinese mulberry required more skilful and delicate work to wind and work it, he said it did, and immediately produced two skeins, one of which he said was from the black mulberry, (from a bush, perhaps, eight or ten feet in circumference,) the other from a bush about four feet. The lesser bush, he said, was less liable to break the thread in winding from the cocoon, and was used in finer silks for fabrics. The black mulberry produced a stronger thread, and would bear the larger reel, and was principally used in that business. The silk here is mostly made in the country by families in detail, and much of it reeled there, and in this condition it is brought to market.—For sewing silk it is doubled as often as required, and twisted as much. This process is wholly in a *dark room*. The silk is worked wet, and for this purpose, to preserve a uniformity, the atmosphere is kept damp, the daylight excluded, and the work carried on with small hand lamps. The machine wss turned by men harnessed like mules. I have since been out about twenty miles to the silk factory of the king, which is worked bv water power, and by which the cocoons are also reeled. I stated to Finizio, as well as at the king's factory, that the Italian sewing silk was sold in the American markets by its weight, while the American sewing silk was sold by the skein; and that one pound of the Italian would have perhaps two hundred and fifty skeins, while one of the American silk would hhve about three hundred and fifty skeins. The cause of this difference of weight, or why the American sewing silk has a tendency to curl or knot, they could not explain without a sample, but said the weight of sewing silk could be diminished or very considerably augmented in the *dyeing*, and that good dyeing required the silk to be well *boiled* in *soap*, after which it was put into an acid, and was there prepared for the process of the dye, according to the color, as desired. The gloss, or dressing, seems to be produced by beating and twisting on a post, which, with the manual labor put upon its finish, it is supposed prevents its tendency to knot.

I asked if the color of the cocoon, yellow or white, gave any difference of value, or indicated a sickly worm, and the answer was that the color was casual, and the value the same; that a selection of white or yellow cocoons from which to get eggs would probably produce a like color; and Mr. Finizio said he had some customers who had so selected and brought him *cocoons* entirely *white*; and that for white ribbons or fabrics, they commanded a greater price of from three to five per cent., though otherwise of equal value.

I have made many other inquiries and observations on this subject, but which in the limits of a letter cannot be detailed. The eggs are here in market during most of the year, and by being kept in a *grotto*, or cold damp place, the worm can be produced as required. The sirocco, or hot south wind, is here the greatest enemy of the silk worm, and sometimes suddenly destroys so many of the worms as to require the reproduction of another class, from eggs in reserve.—They should be sheltered from this wind, and ventilation should be given them from above or by back windows. I think we have sometimes a like south, or south-west wind, which should be guarded against, and which our gardeners call a *red wind*, from a rust produced by it on peach, and apricot trees, which curls up and burns the young leaves, and often kills the trees, and is said to affect the mulberry trees in like manner.

The black mulberry tree is a native of our country, and is common in Dutchess county, especially in Fishkill. It is, on my farm, a common tree. It is as valuable for posts and timber as red cedar. If the suggestions of Mr. Finizio, and others, as to the black mulberry, are correct, as being better for *sewing silk* and more easily reeled, is not the matter worthy of attention? and especially in the first effort, and until skill and experience is obtained? The *black* mulberry can be immediately used, while a few years will be required to rear the Chinese, and obtain the silk for its more delicate work. My most excellent and lamented wife, in the few last years of her declining health, occupied her active mind in some experiments with the silk worm. She placed some of the eggs in the fall of the year, and left them, during the severe cold of the winter, in an upper chamber; and others she placed in a family room not affected by the frosts; in the spring season they produced the silk worm equally well; she put some eggs in the *ice house*, not on the *ice*, but on the *straw*, and in its atmosphere; and some time, I think, in July, they were brought out, and produced their worms in good condition. She fed one hundred worms on the black mulberry, one hundred on the white, one hundred on the Chinese, and one hundred on the black in their early stages, and, in the last stage, before making their cocoons, upon the Chinese;—all succeeded well. Those fed on the black, seemed to produce the strongest thread and most easily wound; the white the next, with but little difference: those fed wholly on the Chinese no ways different from those fed in the last stage, but greater difficulty to wind the Chinese than either those of the black or white. She had the publications made in our state, as well as those by order of congress on the culture of silk, as her instructions. The impulse of her mind was to assist in procuring a profitable family employment for children, for females and infirm persons; without which she considered that the noble system of our Sunday free schools and charitable institutions, was not carried to the full extent of their benevolence. The hope of this consummation affords a cheering prospect. A wide field is presented, in which the philanthropist, the moralist, and the political economist may jointly labor, and, in their efforts, greatly promote the public good. Whoever has seen the condition of the common people of Europe, and especially the idle beggars of Ireland and of Italy, will appreciate the indispensable necessity of attention to this growing evil with us. It is a maxim of political economy that "demand begets supply," and experience has shown that every charity is over crowded. The towns of England are holding meetings, and resolving not to contribute to street beggary, but to give tickets on certain officers, who are to examine and afford ample relief to the afflicted, and send others to the houses of correction and confinement. The culture of silk will afford an additional and valuable employment, and should be connected with our charities; and employment of some kind should be provided in the houses of correction, which will be the most effectual charity.

But even as a new staple for the country, and a new article of production in common families, the culture of silk will be an invaluable acquisition. I have made every observation in my power, and I am fully convinced that the culture of silk will be found suitable to our climate, and well adapted to our country and people. Calabria, though south of Naples, is mountainous, and a much colder climate than ours. The Milan and Peidmontese silk is the best; and is much sought after in the London market. Those districts are in the north of Italy, and near the Alps. I think the production of the worm should be delayed un-

til after the usual cold storm to be expected from the 15th to the 25th May. Our month of June would be the most desirable as a first establishment for them. If families can be induced to the growing of the cocoon, the women and children will soon produce as much from the mulberry trees about the house and along the fence, as the father can make on the clear profit of his farm. Thermometers or fires are not much used in Italy, the season giving the temperature required. The business must be simplified, and freed from too much instruction, to secure its success with us. The difficulty to extract reasons or information from the common people of the continent is so evident, and they so essentially differ from our American people in their aptitude to give reasons and explanations, that I say —do not seek or receive too much European instruction, but rely on the producible common sense of our people; this fund will not fail or be insufficient, and, with a little experience, I am sure of success in the culture of silk in our country. Induce to the growing of the cocoons, and the object will be accomplished. It is a very simple business. I shall continue my observations on this important and interesting subject, in my tour through France; but if our American merchants and dealers in silks from Italy and France, could be induced to introduce the culture of silk, and obtain from time to time information from their correspondents, they would be a host of strength in the business. I have found the *operatives* here rather a prejudiced and uncertain source for information. They work, but cannot tell the why or wherefore."

Our next extracts are from Gen. Tallmadge's letter, dated Paris, April 6th, 1836.

"In my last letter from Naples I believe I promised to say something more on the cultivation of silk. I have since travelled through Italy, and especially in the silk districts, and also through France, and have visited many of the manufactories in both countries, endeavoring to learn the details of this subject, now so interesting, and, I think, so essential to our country. The limits of a letter will, however, confine me to a few isolated remarks.

The weaving of silk after it gets into skeins, is like any other weaving of like character; it is the production of silk, and the habit of growing it, that must be acquired by our country; and it is in this view, a mine of boundless wealth, not second even to the production of cotton. The country which so lately surprised Europe by sending *eight* bales of cotton to its market, and now astonishes the world with its countless thousands, may soon exhibit a like wonder in the production of its silk.

In Calabria, which is in the south of Italy the black mulberry is principally used. In the rest of Italy the white mulberry, common to them and to France, is principally used. The north of Italy, that is between the Alps and the Appenines, produces the most and the best silk. In this region, and especially in Sardinia, near Turin, and at *Novi*, the English and French are competitors in market, to purchase their silk as the best in the world; and yet on the 9th of March, the snow was one foot and a half deep, and the streets of Novi blocked up like our Cedar street! In Calabria the silk is produced by the country people, in their families, and mostly reeled by them. There are very few factories for reeling in the Neapoliten kingdom. In Lombardy, and towards Venice, there are also establishments for reeling, yet the greater part is reeled by the families, in detail, and brought to market in the skein. In Sardinia the cocoons are mostly reeled in establishments. At Novi their reeling establishments are numerous:—I saw one, now erecting, which is a quadrangle *two hundred* feet square, and appropriated solely to reeling cocoons. They are purchased up from near Milan, and many miles distant. This is admitted to be the best silk in the world. The *red* mulberry is here principally used, and is known as the Calabria mulberry. It is described as having a dark fruit; the tree is like our *black;* and when I called it *black* mulberry, I was corrected, and told the *stain of the fruit* was *red*, and not *black*, and which gave the character of the tree. The French in addition to the *white* mulberry, have a *dwarf* white, much liked, and getting into use; but, it must be remembered, there is not in France, and scarcely in Italy, a fence, and they do not graze their fields as we do. With our habit of pasturage, the dwarf would be inadmissible. The *Chinese* mulberry is unknown in Italy. I found only a few young engrafted trees, but no experiments there, to be relied upon, to establish its superior utility. In Italy, and in France, the mulberry is generally planted near the houses, along the road sides, by division fences, and often like an open orchard. The trees are formed like a middle sized apple tree. Its shade does not injure the land. The tree in Italy is usually made to sustain a grape vine, and the field is cultivated for wheat and other crops. There is less discrimination here than you would imagine in the kind of mulberry. The French have made experiments, especially on the *Chinese;* and the opinion seems to be, that the *Chinese* mulberry will bear to have its leaves twice picked off, and thus produce two crops of silk in one year. As yet, however, there is not much use made of the Chinese mulberry, even here, and the grower of silk cannot answer as to its virtues;—but the answer is often given to me, that, as to the *quality* and the *quantity* of the silk, it is the *same* as any other mulberry; and that the quality of the silk depends on the treatment of the worm, and the care and skill in reeling. They pay less attention to the *kind* of mulberry on which it is fed than we expect. They have also *white*, and use it. *Habit* directs more in Europe than with us, and therefore I urge that our people make experiments for themselves. They should neither take nor reject any thing too quickly upon European experience. Climate and circumstances may produce a different result, and the alleged experiments of Europe may have been incorrectly or inadequately tried.

It is a peculiar and important circumstance in favor of the adaptation and fitness of our climate to the culture of silk, that, with us, the silk worm is produced at the beginning of warm weather, in May and June, by natural temperature of the season, while in Europe, and especially in Italy and France, it is produced only by artificial temperature and means. This fact is a volume in promise for our country. Fires and a thermometer are not used in the south of Italy to secure an equal temperature in the rooms of the worms, nor much used in the north of Italy, unless in the region of some snow capped mountain, or where other circumstances produce sudden inequalities of temperature. It is the same as to the south and north of France.

The books already published, by congress and our state, give the best, and indeed all the instructions which can be given on the subject; and with these, as guides, let the safe and unerring common sense of our people make experiments for themselves: and, I venture to say, the time is not far distant when America will produce silk in abundance from practical information and science, while other countries will continue to do it from habit.

On the continent, and particularly in Italy and France, when about to get out, or transplant, trees or vines, it is the usage to dig the hole about four feet square, and from two to three feet deep; and after thus breaking up the ground, it is left some months to the operation of the air, and to frost. Sometimes manure is mingled with the dirt; and when the tree is set out, the hole is filled to a level. The tree, under such circumstances, takes much firmer root, grows better and holds its upright position.

Grape vines are set out on this principle; but, more commonly, a ditch, or small canal, will be dug, three or four feet wide, and two or three feet deep, and thus open, be left exposed to weather some months. Roots, or cuttings are then planted, and the dirt filled in partially, so as to leave them to take root at least one foot below the level of the surface of the land. As the summer drought comes on, the dirt is hoed about them nearly to a level. The vines are treated upon the same principle. In the spring the ground is hoed away from the stock, so as to break off and prevent the growing of the side and upper roots; course manure is often placed in the hole, about the stock, and in the dry season the dirt is hoed over and about the stock from time to time nearly to a level. The object and effect of this treatment of the vine is, by inducing the growth of the deep and lower roots to prevent those side and upper roots from running near the surface of the earth, and which, in the spring and wet seasons, produce an excess of growth, and in the dry and summer season fail to sustain the vine, and leave the fruit to wilt and wither, or become imperfect. It is thus the roots of the grape vine are made to run so low in the ground as to allow of cultivation, for a garden or for a wheat crop, without the spade or plough reaching any of the roots of the vine. An equality of growth, in the wet or dry season, is thus in a degree secured; and the uniformity insures the maturity of the grapes. May not this delightful fruit yet be naturalized with us?

The implements of husbandry, in either Italy or France, offer not much for the American farmer. Their lands are mostly cultivated with the spade and manual labour, and when the plough is used, it is the old fashioned plough, on a pair of wheels.—Their crops and their cultivation are so different from ours, that very little can be learned from them useful to us. Silk, wine, and wheat, are their staple productions, and to an almost incredible extent; so it is in France, where the manner of cultivation, and implements of husbandry, are much the same. Wheat is now so abundant in Italy and France, and the price so low, that I found them the other day, at Marseilles, shipping wheat for the New York market! and they would do the same from all parts of Italy, but for their lack of commercial enterprise. Our farmers are now sheltered by a protecting duty, otherwise their crops would moulder in their barns; and even New York be furnished with bread from a foreign market. They have felt secure in their production, and have not regarded, as necessary to themselves, the system of protection for our domestic products. Should peace continue a few years longer in Europe, such is its surcharge of labor, and power of production, that every product of American agriculture will find foreign competition, even in our own markets at home. The

wheat, both in Italy and France, greatly surprised me;—the quantity is immense, and greatly beyond my belief till actual observation; and I have travelled eight or nine hundred miles in France, and have no where found sour, dark, or *imperfect bread.* Can we do and say the same in our own country? The bread of France certainly has a decided superiority over ours.

The agriculture of France is in fine condition, and secon only to that of England. It has every abundance and the people appear prosperous and happy.—The *olive* is a valuable addition to the production of Italy and France. Our climate will not, perhaps, favor the tree, at least in the northern states; yet it is of so much value it should be encouraged.—The *olive* can be successfully engrafted on the *ash tree,* and thus, perhaps, it might be acclimated with us. Some such trees, engrafted on the ash, are said to be growing at *Pistoia,* about twenty miles from Florence. There is no inducement, in France or Italy, thus to engraft the *olive,* but the hint is certainly worthy the attention of our nurserymen and of our country.

Marseilles is a delightful city. It has the air and activity of New York, and partakes in a like commercial prosperity. The air of liberty and enterprise in the people appears in strong contrast on coming from Austria and Italy, where the mental and bodily energies of man are, but too certainly, drying up under the jealousy and despotism of absolute monarchies. The harbor of Marseilles gave a zest to our feelings in the exhibition of several American vessels, and which even the ladies of our party readily distinguished from others by their peculiar grace and beauty. Our country, in its vessels, certainly has an unrivalled excellence. I spent a day in the examination of the *Toulon* navy yard and fleet. It is an extensive naval depot, abundantly provided and pretty well arranged. It is, in one sense, the penitentiary or state prison of France. It has four thousand convicts, sentenced to hard labor; and they are allowed to solicit and receive gratuities from visitors. It has several guns intended to fire *bombs on a direct line;* these were shown with some evident exultation; four are allotted to each of the larger vessels. They are well understood by our naval men. There was not any thing else novel or different from other naval depots; and all was of an order and scale from which we have nothing to learn for our service. I was on board the *Monte Bello,* equipped and ready for sea; she mounts 120 guns; her upper decks are so much drawn in as to allow only of carronades, and on slides, for her upper tier. I am sure my national feelings do not lead me into an error, when I say that either our Franklin, or Delaware, seventy-four is equal in force and strength. I was there before our affairs with France were known to be adjusted, and was received and admitted as an American, and treated with kindness and attention.

Great efforts are made in France to advance the condition of its agriculture. It is ascertained that the increased use of the *potatoe* has diminished the consumption of wheat for bread. The raising of the *beet-root,* for the production of sugar, has, as one of its principal objects, the supplying a new production for the benefit of the farmer.—For the same reason the growing of *madder* is much encouraged, and the production of the *beet* and *madder* come in great relief to agriculture, and are made new sources of public wealth. Our farmer certainly merits the like fostering care and assistance.

I have before mentioned the use of the natural current of the rivers and principal streams of the continent as a water power for manufacturing objects, and I have no doubt but the current in the East river, at New-York, may be used for the same purposes. At *Lyons,* a water wheel is thus turned, and works a forcing pump which drives up the water of the pier about three hundred feet to a reservoir in a public garden; it there forms a *jet d'eau* and falls into a marble basin, which serves as a fountain in case of fire, and its overflow washes the streets. It is attended and worked by one man, and, but for the economy and simplicity of the whole machinery, it might be recommended for adoption at New-York and some of our public squares be thus ornamented and made useful.

The elastic power of our people in rising up from the disaster of the late fire, is cause of wonder and admiration. Their physical energies, and manly efforts in support of commercial credit, have commanded the observation and commendation of Europe.—Our affair with France awoke attention, and the attitude assumed by our country excited admiration and surprise. America is now advantageously known on the continent. Respectable and intelligent Europeans no longer ask where America is, nor inquire the costume and court language of this new people. In every society or circle an American citizen finds demonstrations which afford cause for exulting satisfaction, and increased love of his country. The fame of our success, in naval architecture and steam power, in agriculture, commerce and manufactures, in increasing wealth and universal prosperity, has gone abroad, and the subjects of monarchs are inquiring if there is not some secret magic in the free institutions of America, which works such mighty wonders."

CULTURE OF SILK IN FRANCE, &c.

Since the foregoing was put in type, we have been favored with the perusal of a letter addressed to a member of the Institute, from General Tallmadge, dated Paris, April 12, 1836. As it contains some further suggestions in relation to the culture of silk, we have asked and obtained permission to make extracts from it. He says:—

"I have in part anticipated your request in relation to the culture of silk, and have written by the previous packet—as also from Naples. In my last letter, when speaking of the planting and culture of the mulberry tree, I fear I omitted to add that proprietors of land often cultivate the mulberry tree with a view to profit from the leaves.—It is common in France and Italy, to sell the leaves to families, who rear the worms, at a fixed rate; but it is more usual for indigent families to plant a certain number of trees. They furnish the leaves, feed, and take care of the worms, and return to the owner of the land one equal half of the cocoons produced, which is his share of the income, and a most convenient one it is, to be produced from the trees along the road side, and in places which do not injure his agriculture; and this kind of tenating is of immense benefit to the industrious poor."

"I am proud of the sample of silk sent me in your letter, as made in America by the power loom and have shown it to several.—The patent law of England and France allows its benefits to *aliens,* while our law is confined to citizens or resident aliens. You can therefore get a patent here at pleasure. The French are, like all Europeans, slow in acquiring new habits, or making any changes in their pursuits. From this cause in practice, the different mulberries are not heeded. They have white, from habit, and do not yet use the Chinese mulberry. We have more of the Chinese growing than France and Italy together.

"I have taken pains to obtain from the government some recent information from India, not yet published; also some recent papers from the National Institute, which, if received, shall be sent out. I attend the public institutions, and especially the weekly meetings of the National Institute and the Agricultural Society, and am much pleased.

"The science and information from the National Institute is important, and from the superior intelligence and adaptation of our people, I am sure we shall in America first practice, and reap benefits from this science. Our advancement is matter of astonishment to Europe, and it is often said to me that we keep a-head of them in all experiments reducible to practice."

In a note it is added that—"The program of the agricultural meeting, containing reports on the proceedings of the last year, I will send by some private conveyance—the medals were given out in my presence.—Our Institute need not blush."

PORCELAIN SCALE-PLATE.

Mr. Juggins (of James-street, Covent Garden) is a dealer in butter and cheese. He states that in weighing the former it is the practice to wet the metal dish at present in use, in order to prevent the butter from adhering to it: the true weight of the butter is, therefore, less than the apparent by all the water that is put on the dish; a circumstance that, in weighing out butter by the ounce to small customers, amounts to a very sensible proportion of the whole weight.

It is also necessary, especially in hot weather, to scour the scale-dish two or three times a day, both for the appearance of cleanliness, and to prevent the scale from giving a taint to the butter placed in it. But this frequent scouring makes the scale-dish too light, and, in order to adjust the scales, there is a constant temptation to employ contrivances which subject them to be broken when examined by the Annoyance Jury.

For the last five years Mr. Juggins has employed a plate of glazed porcelain instead of metal, by which he obtains the advantage of constant cleanliness, without the necessity of wetting the surface of the plate before using it: there is no sensible loss of weight, for this plate never requires to be scoured, but only to be washed or wiped; the butter receives no taint, and the evident cleanliness conciliates the good will of customers. The cost of one of these plates, on account of its size and thickness, is seven shillings and sixpence; but Mr. J. has not hitherto had any broken, so that with common care they will seldom require to be renewed.—*Trans. Soc. of Arts.*

Agriculture aided by science, will make a little nation a great one.

All the energy of the hero, and all the science of the philosopher, may find scope in the cultivation of one farm.

THE POTATOE.

It may be remarked that we have seen in Brazil a hitherto undescribed species of Solanum, having a tuberous root similar to the common potatoe, and which by culture, might become equal if not superior to the common potatoe. It is believed that descriptions from the specimens there found were sent to Hooker and other European botanists, but no notice has appeared in this country of the fact.

A plant, second hardly to any in point of importance in furnishing food for man, requiring also the same climates, has been introduced into the same countries. This is the potatoe, for which India as well as the rest of the old world, is indebted to the new world. It has been found in a wild state, in 33° of S. latitude in Chili, in the mountains near Valparaiso and Mendoza, and also near Lima, Quito, and Santa Fe de Bagota; but in these situations it is supposed to have escaped from a state of cultivation, as the illustrious Humboldt argues that it must have travelled north in "the course followed by the Incas in their conquests." But it was introduced into England from Virginia, in 1586, by Sir W. Raleigh, and not known to the Mexicans in the time of Montezuma; he concludes it as probable, that if the English colonies did not receive it from South America, this plant was originally wild in some country of the northern hemisphere, as it was in Chili. This conjecture has been singularly confirmed by the potatoe being found wild on the Pic d'Orizaba by Deppe and Schiede (D. Don.)

The potatoe, we are informed by Dr. Ainslie, was introduced into India from the Cape of Good Hope, and some of excellent quality are produced in the Mysore country, particularly at Bangalore and Nundydroog. They are grown all over India (*Roxb.*), and of a very fine quality in the cold weather, or from October to March, along the planes of India from Patna to Loondiana. Dr. Wallich states, that "they are planted in the valleys and lower hills of Nepal, so as to afford fresh crops all the year round: the roots are planted in February, June, and November, and gathered after three months."—They are introduced into the northern mountains, and grown in the neighborhood of Simla, at an elevation of 7,500 feet; and by Major Young, on the mountains north of Deyra, at an elevation of 6,700 feet; so that Mussooree made its first appearance on the map by the name of the Potch garden. Their quality was subsequently much improved by Captain Townsend raising some from seed, which in the third year became of enormous size, and of very good quality. They are now becoming very generally cultivated, both in the hills and plains of northern India; and it is fortunate, both for sellers and consumers, that those grown in the former come in when the others are going out of season.

Potatoes are in some places becoming adopted as food by the natives of India, though more slowly than could be wished; at this we need not be surprised, as even in France their use was not generally adopted until after their introduction into Europe more than two hundred years, and then only owing to the persevering efforts of the philanthropic Parmentier, round whose tomb in Pere la Chaise, they are now yearly planted; so that M. Fee remarks "verite frappante, toujours repetee et toujours nouvelle: il faut deployer plus d'activite, et plus de ressources d'esprit pour faire du bien aux hommes que pour leur nuire."—[Royle's Botany of the Himalaya Mountains, No. 8.]

From the Farmer & Gardener.

THEORY OF VAN MONS AS TO THE MODE OF OBTAINING EXCELLENT FRIUT FROM SEED.

The June number of the Horticulture Register and Gardener's Magazine, contains a most interesting article on Van Mons' method of raising fruit trees from the seed. The paper was communicated by that distinguished Horticulturist and zealous friend of science, the Hon. Henry A. S. Dearborn, of Massachusetts. Mr. D. has prefaced the *theory* of Mr. Van Mons, with a very minute account of his history, which, from the deep interest it excited in us loses nothing from being prepared by the pen of so ripe a scholar and accomplished a gentleman as is its author. The graphic notice of Mr. Van Mons, as well as being drawn up with much feeling and skill, and, therefore, reflecting great credit upon its writer, contains many incidents of deep moment to the horticultural world. Our limits will not permit us, or we would with all possible pleasure insert the prefatory article entire, but being thus precluded, we must content ourself with giving a succint abstract of Mr. Van Mons' theory, which, while it presents much of novelty and intrepidity, shews that its learned author is possessed of that genuine moral courage essential alike to make a man respected, and to entitle him to the apellation of being a benefactor of his species.

As Mr. Dearborn very properly observes, it is necessary to recall certain circumstances in relation to Mr. Van Mons, to induce the reader to think that when a man of such a temperament, establishes a theory on the regeneration of fruits, after having practised his experiments during fifty consecutive years, it will be received with much greater confidence, as it quadrates with the course of nature.

At the age of fifteen, Mr. Van Mons sowed, in his father's garden, the seeds of perennial flowers, roses and other shrubs, with the design of observing the developement, the successive generations, and the variations, which might thus be produced. To these he soon added seeds and stones of the well known fruits, and remarked that of all his young plants, the pears were those which least resembled their parent. He searched the gardens and nurseries, markets and neighboring provinces, to confirm or rectify his first ideas, on the causes of the variation in flowers and fruits.

At the age of 22 years, the basis of his theory was fixed, and he was established as a pharmacopolist. At that time he had a a gardener, named Meuris, in whom he discovered a disposition for observation: he initiated him into his pomological views, and in a short time Meuris was capable of laboring with success as well alone as with his master. In their journeys they bought every where, wild and free stocks of fruit trees, which had a favorable appearance.—They were so familiar with the characteristics, which the aspect and the wood furnished, that they could purchase as well in winter as in summer. Mr. Van Mons had in a short time 80,000 fruit trees in his nursery.

Mr. Van Mons after a long series of experiments, arrived at this conclusion, or rather established this law, that so long as plants remain in their natural situation, they do not sensibly vary, and their seeds always produce the same, but on changing their climate and territory, several among them vary, some more, and some less, and when they have once departed from their natural state they never again return to it, but are removed more and more therefrom, by successive generations, and produced sufficiently often, distinct races, more or less durable, and that finally if these varieties are carried back to the territory of their ancestors, they will neither represent the character of their parents, or even return to the species from whence they sprung.

Mr. Van Mons has introduced wild pear trees into the middle of his nursery, of the best perfected varieties; these wild trees, or subnatural species, as he calls them, have not varied, and continued to yield poor acrid fruit; the seeds of this bad fruit have been sown and they have always produced wild trees; and although these wild trees flourish in the midst of the perfected varieties, the seeds of both being sowed, neither produced any hybrids, from which Mr. Van Mons concluded, that there cannot be a cross fecundation between a natural species and a variety. He does not deny that the species can be mutually fecundated, or that the varieties can be in like manner fecundated; but he maintains, that the plants which are the result, never offer an appreciable resemblance, either to the father or mother. The origin, therefore, which Linnæus has given to the *Datisca cannobina* may be considered fabulous. Besides, he does not believe that hybrids are so frequently produced, as has been alleged.

Mr. Van Mons was the first to ascertain and assert, contrary to appearances and common opinion, that double flowers are not a variation, but rather, a sign of what he calls *feebleness*. This assertion which may be considered bold for the age, has since been ranked among the number of truths, from the fact, that it has been ascertained, there is less solid matter in all the supernumerary petals of a double flower, than there would have been in the seeds, if the flower had not been double. He contends that, all things besides being equal, a scion taken from an apple grafted on a paradise stock, or from a pear grafted on a quince,

does not succeed well when placed on a free stock: that if the paradise and quince render the grafts more precocious, and give a greater volume to the fruit, they impair the vigor of the tree and abridge its life, by not furnishing sufficient nourishment, and that it is just to conclude, that a scion taken from such a tree has already been impaired. From these facts, Mr. Van Mons recommends that scions be always engrafted on free stocks, and that such individuals be selected which appear most to resemble in vigor and physiology the varieties which are to be engrafted upon them.

Mr. Van Mons contends that as long as plants in a state of nature remain in their natal soil, they produce, during their whole lives, seeds which do not degenerate. For instance, seeds taken from a Baobab that was two thousand years old, produced trees like itself quite as well as those which it had borne at the age of twenty years.—Wild pear trees in a state of nature, and in their native soil, always reproduce seeds, without any sensible variation. It is not the same with plants born in a state of variation, either in consequence of having changed the climate, the territory, or some other unknown cause. The seeds which a domesticated pear--(that is to say, one which has been for a long time in a state of variation) yields at its hundredth fructification, produces trees not only very different from itself in consequence of its being only a variety—and the bounds of variation are not known in descending from parent to son—but still very different from the trees which have been produced from the seed of its first fructification; and the older a domesticated pear becomes, the nearer do the trees produced from its latest seeds approach to a state of nature, without, nevertheless, being able even to return to it.

Mr. Van Mons further asserts, that as the seeds of the first fructification of an annual plant, in a state of variation, produces plants which may vary without removing far from the state of their parent, while on the contrary, the seeds which are yielded by the hundreth fructification of a domesticated pear of excellent quality, or for a long time in a state of variation, produce a great variety of trees, which neither resemble their parent, and whose fruit almost always detestable, are more or less near to a wild state; this difference should have its cause in an unfavorable modification,—in a degeneracy which the seed of the pear undergoes in consequence of the age of the variety which bore it.

Mr. Van Mons advances this as the result of his experience—that by sowing the first seeds of a new variety of fruit tree, there should be obtained trees always variable in their seeds, because they can no longer escape from the condition, and which are less disposed to return towards a wild state than those produced from seeds of an ancient variety; and as those which tend to a wild state have a less chance of becoming perfect, according to our tastes, than those which are in the open field of vegetation, it is the seminary of the first seeds of the newest varieties of fruit trees that we should expect to find more perfect parts according to our tastes.

The method by which he has tested the truth of his theory may be briefly stated. He has successively and without interruption sowed the first seed of a pear tree, for instance, for eight generations, always taking the seed of the tree that bore the best fruit, by which he proved that each succeeding generation produced more perfect fruit than the succeeding one.

A similar experiment made upon the apple yielded no other than good fruit in the fourth generation. The stone fruits, as the peach, appricot, plum and cherry, become perfect in a still shorter time; all of them produced good fruits in the third generation.

The experiments made by Mr. Van Mons justify these conclusions; that excellent fruits can be obtained in from 12 to 15 years from the stones of peaches, apricots, plums and cherries; from apples in about 20 years. With regard to pears the difficulty is greater and requires about 36 years. A remarkable fact developed itself in the course of Mr. Van Mons' experiments—it is this—that the tree of each successive planting of the seed yielded fruit in a fewer number of years than the preceding one. For example, the trees from the second sowing of the seed of the first generation, yielded their first fruit at the age of from ten to twelve years as the mean time—those of the third generation at from eight to ten years; those of the 4th generation from six to eight years, those of the 5th generation at six years, whereas from the 8th generation he obtained several pear trees at the age of 4 years.

Mr. Van Mons considers it an invariable principle that a graff does not bloom sooner than the parent stock from which it was taken; that it is advantageous to collect the fruit a little before it is fully ripe, from which it is desirable to obtain seed for planting, and to leave it to become perfectly mellow and reach a state of decay before extracting the seed or stones.

He prefers the white thorn to the quince for stocks for grafting the ancient varieties of pears upon, and says that they grow higher, have a more perfect pyramidal form, and produce fruit nearer the trunk.

Mr. Van Mons says that he has remarked "that the most excellent of the new varieties of pear introduced by him from seed, least resists the ravages of old age, and become sooner old than the varieties whose birth preceded them, and that they cannot attain an age of half a century without decrepitude. The first of these symptoms is that of bearing less constantly and the fruit ripening later. The decay of the wood, the loss of the beautiful form of the tree, and the alteration of the fruit follows at much later periods. The varieties which have existed but half a century do not suffer from the canker at the ends of the branches nor from diseases of the bark; the fruit does not crack, is not filled with a hard substance, covered with knots, nor insipid, nor dry; the alternates are but a year; their varieties can still be grafted on other trees without their infirmities being augmented, and it will require half a century more to end their sufferings, and the general destruction of the varieties is the only remedy which can be applied to its diseases."

We have thus briefly abstracted the substance of Mr. Van Mons' theory and chiefly confined ourself to the language of the translator, in order that by adhering to the text we might avoid that confusion too often consequent upon mistaking the views of a writer.

ON THE CULTIVATION OF THE PLUM, WITH SOME REMARKS UPON GRAFTING ON PEACH STOCKS. BY S. POND.

Having frequently been called upon to state some reasons why the plum trees in my garden are so much more healthy and vigorous than trees in general, and so much more free from all kinds of insects which infest these trees in great numbers in many other places, I send you the following remarks, which, perhaps, if they contain nothing very new, may be of benefit to some of your readers, and, at least, call attention to the subject.

In the neighborhood in which I reside, the plum trees, in the various gardens, have been declining in vigor and health for many years, and where, formerly, bushels of fine fruit, though of the more common kinds, were raised, now scarcely enough is produced to remunerate for the labor of picking; indeed, a large part of the trees have decayed and been rooted up by the proprietors; some few young trees have been set out; but many of these have shared the same fate of the old ones; the same insects and the same disease, if such it is that destroys the trees, from inattention, having been allowed to spread to such a great degree as to defy all attempts to save them.

The first object in planting plum trees is, to select fine, healthy, handsomely formed ones, about two or three years, from the bud or graft, and worked upon their own stools; be careful, in transplanting, to cut the roots as little as possible. The soil of my garden where the trees are planted, is deep and rich and quite moist, and I find that they bare fruit much more abundantly in such than in a lighter one. The situation is very low, so much so that about four or five years since, in the month of March, the salt water, from the unusual height of the tide that season, overflowed the whole of it to the depth of fifteen or twenty inches. At the time I had a fine lot of cherry and peach trees which were covered with flower buds; but as soon as the warm weather of spring came on they soon gave signs of decay, and, before the close of summer, were all nearly or quite dead. Grapes, strawberries, &c., shared the same fate.* I was much surprised, however, to notice the vigor of the plum trees that season; they made uncommonly large shoots; and the foliage was of a dark green and most vigorous growth: they seemed, in fact to have taken a new start, and they have ever since continued to grow with the same strength, bearing full crops every season, more particularly the last. The bark is smooth and free from all *excrescences* of any kind; and the fine appearance they have is entirely different from any other I have seen.

Plum trees I have found are kept in better health and a more vigorous state, by

*Residing in the same neighborhood, and very near Mr. Pond, our garden suffered in a like degree with his. Many of our trees were injured, and strawberries and many other small plants totally destroyed, The plum trees were, however, all the more vigorous.—CONDS

setting their roots somewhat higher in the soil than most other trees. In planting I have set them at the distance of about twenty feet apart. In pruning considerable care is requisite, and the branches should not be cut indiscriminately as is often done by many persons, taking out a branch here and there, and leaving the tree without any shape; in the first place, very few large limbs should be taken off at all; all trimming should be performed on the young wood, and the judicious pruner must look ahead a year or two if he would excel in the cultivation of the plum. Cut out the branches in the middle of the tree and keep it open, so that the air and sun can penetrate freely to the fruit. In the month of July, part of the new shoots should be rubbed off with the fingers, and the others headed down so as to make them throw out laterals upon which the greatest quantity of fruit is produced; keep the branches well shortened, and every year, in the month of July, go over the trees and rub off and cut away as above directed. By this course of culture the trees will be more dwarf in their growth, and their branches being kept thin of wood, will produce a much larger quantity of fruit.

The grafting of the plum on peach stocks has lately prevailed to a considerable extent with nurserymen, and many trees have been spread about the country grown in this manner. A few years since I visited many of the nurseries near the city of New York, and purchased from one or two a large number of plum trees. I did not know, at the time, that they were on the peach stock; but when I received the trees and commenced setting them out, I immediately perceived what they were. They were planted with the same care that all my other trees were, and during summer they made a vigorous and strong growth, and I began to think they would answer a better purpose than those on their own bottoms. But, by the next spring, they presented a different appearance; many of them had begun to decay at the root and gradually they became less and less vigorous until autumn, when some of them showed signs of immediate death. The succeeding winter the cold was rather severe, and towards spring, at the season for swelling their buds, but few of the trees showed any signs of vegetation. I took the soil away at the roots, and there found what a moments reflection would have convinced me I should. The stocks just below where they were grafted were completely covered with gum; and the *borer*, which seldom touches the plum, had made sad ravages. I soon determined to root them up, and also came to the conclusion never to plant a plum tree, grafted on peach, again.

The only advantage that I have ever heard advanced in favor of peach stocks is, that the plums grow more vigorously and consequently come into a bearing state at an earlier period than when on their own bottoms; every body knows how short-lived the peach tree is in our climate; how subject to gum, canker, and other diseases; and to graft a tree, so hardy as is the plum, upon it, seems too absurd for belief. Gaining a year or so in procuring fruit, if indeed this is the fact, which I am inclined to doubt,—is very little in comparison with the loss of the tree after three or four years of care and expense in bringing it into a bearing state. But with all these obvious facts before the public, hundreds of trees, worked upon the peach, are yearly sold and planted. One great object in grafting or budding upon the peach, is the facility with which the scions or buds take, while the plum stock is extremely difficult, and often one half or more of them do not grow at all. Plum stocks are also not easily to be procured of size large enough for grafting, as they require to be three years old, while the peach requires but one. The demand for plum trees having been very great, is probably one reason why more peach stocks have been used; but the purchaser should always be informed when such is the fact. I never would plant a plum tree upon my grounds again unless it was budded or grafted on its own kind.

Among the many kinds of plums with which our catalogues abound, the following I can recommend as excellent, having fruited them successively for two or three years:—

White or yellow fruited.	Purple fruited.
White Gage,	Royal de Tours,
Bingham,	Duane's Purple,
Coe's Golden Drop.	Smith's Orleans,
	Semiana,
	Seedling.

These are all constant bearers, and of large size, beautiful appearance, and fine flavor. The old Green Gage, with me, is a shy bearer. Corses' Field Marshall has not yet come into bearing, but it promises well, and is a very vigorous and hardy kind. Bolmar's Washington has not yet produced much in my garden, although the trees are quite large, and have flowered every season. Of the above list the Royal de Tours is quite early, and the Semiana a very late plum, in eating from the middle of October to the middle of November. Some trees, only two years from the graft, produced twenty or thirty plums last season. At the season it ripens, there is but little other fruit, and on this account it is a very valuable sort.

There are some insects which attack the plum, and, in some districts, destroy the whole crop of fruit. But as I have never been troubled to any great extent, I can say but little about them. The *curculio* I have seen on the trees sometimes, and I am very particular to have *every* fruit picked up *as soon as it falls from the tree.* By this means the insect has been prevented from spreading, while in the gardens almost adjoining, they have destroyed the crop for several years. The black excrescence which appears on the branches, I have also, as yet, seen but a few times; and this I immediately cut away. I have no doubt but it is caused by an insect, although some cultivators attribute it to disease arising from soil and situation. I have always given great attention to the cultivation of the plum, and have found no trouble in procuring fruit; and if the same care is given by other persons, I see no reason why plums should not be as plenty as any other fruit.

Yours,

S. POND.

Cambridgeport, April 4, 1835.

From the Maine Farmer.

PORK.

Mr. Editor:—I consider the ideas bro't to view by your correspondents in No. 17, 18, and 23, of your first volume, at pages 131, 140, and 180, respecting the propriety of Farmers keeping more Swine, than is generally kept, so important to the agricultural interest, that I hope we Farmers shall look over their reasoning and remarks once more, at least. That they may be easily turned to, by those who have not the bound volume, I have named the numbers of the papers, and for those who have the volume I have noted the pages, where the several writers' ideas may be found; they urge the propriety of Farmers keeping more swine, first, because that any given quantity of pounds of *pork*, can be raised at less expense than the same number of pounds of good *Beef*, which I have no doubt of; secondly, because swine's manure is preferable to that of other animals, and that by placing in their reach thistles, mud, and oats, they make more, &c, &c.

But the writers seem to make their calculations on potatoes as much of the food of store swine. Experience has since shown that other equally valuable as potatoes, can be furnished them at less expense. Apples, and Ruta Baga, have been found as valuable, and double the number of bushels of the latter vegetable can generally be raised on a given quantity of land compared with potatoes, and no doubt they are worth as much bushel for bushel, for store swine, as potatoes, and a given quantity of land can be tilled, and the roots taken care of, at about the same expense reckoning the cost of seed, &c. Again, if swine are kept in pens, or yards, clover grass mowed and thrown in green is good food for them, and if a farmer has a piece of land contiguous to his hog pen, this will be found a great saving of roots—but he may turn them out in a clover pasture several months in Summer, and they will there grow, and thrive. This I should not advise unless it be in an orchard, or on land soon to be ploughed, because there would be some waste of manure. By keeping many swine is not meant to keep more than the farmer can keep without their suffering with hunger, and then they will be of fair size. When put up to fat let their food be cooked or soaked. Oats and Peas will fatten them fast. I would not recommend giving them much Indian corn, or meal, made of it, but a little toward the close of the fattening, produces the hardest, and most palatable Pork. Clear pork is now from 25 to 30 dollars the barrel, in Boston, and generally in Maine. A farmer cannot go into a more profitable mode of making money, and certainly he may enrich his farm by it.

I would suggest, that it is never profitable to winter early pigs—they should be such as are farrowed in September, or the the early part of October, kept warm in winter. Such will need but little expense in wintering, and they will make fine hogs the next fall; whereas early ones, cost very considerable the first summer, more in winter, and will be very little better the subsequent fall when slaughtered. Early pigs should always be killed the fall, or early part of the first winter, after they are farrowed; by some, they are thought to produce pork, at as little expense as any; I think othewise, as they cost nearly as much in fattening, and large swine always bring most in the market. Belgrade.

From the Farmer's Register.

RECENT AND CURIOUS FACTS AND QUESTIONS, RESPECTING PLASTER BEDS IN NEW YORK.

To the Editor of the Farmers' Register:—

Geneseo, N. Y., June 3, 1836.

* * * * *

I refer you to a copy of a communication I have just made to professor Silliman. Can you clear away the fog which you will perceive surrounds us? Is it possible that the simple operation of pulverizing

will add ten-fold to the efficacy of your shell marl?

* * * * *

An additional fact in relation to the fertilizing quality of lime seems to be rendered very probable, if not certain by some experiments which have been recently made in this town. A Mr. Moore, in digging a well, hit upon a formation of soft or friable limestone combined with fossil shells of great diversity of formation. Specimens were sent in different directions, and there was but one opinion among those who tested them, that it was a limestone formation. A bed of gypsum is very valuable.—Mr. Moore and his neighbors appeared determined to believe that they had discovered a valuable gypsum formation on their farms. They sent wagon loads to plaster mills, and grist mills, and caused, what they pronounced gypsum, to be spread on a great number of fields, during last fall and this spring. The result has been, in every instance, that the clover, wheat and spring crops have been essentially benefitted by the application; and Mr. Moore and his neighbors still believe the substance which they are selling as gypsum, surpasses in efficacy either the Wheatland or the Cayuga plaster That this formation is equally efficacious with the plaster which is generally used in this section of the State, there seems no reason to doubt; and that it is a limestone formation, is beyond the possibility of a doubt.

Is it possible that the mechanical operation of grinding or pulverizing crude or unburnt limestone, renders it equally fertilizing with gypsum? It appears difficult to avoid this inference. Mr. Moore has erected a windmill—is digging and vending what he calls plaster in great quantities; and the farmers, from hundreds of experiments, entertain the most entire confidence in its efficacy.

With a view of obtaining some additional facts on this subject, which, in its present stage, is a little perplexing, a person called on Mr. Moore with a vial of muriatic acid in his pocket. Mr. Moore showed him specimens of Chittenango, Cayuga, Phelpstown and Wheatland plaster—each of these specimens effervesced on the application of the acid. This fact seems to add to the perplexity of the subject, and would appear to indicate that we are using (and certainly deriving great benefit from the use) a certain description of limestone, but which is not gypsum. If this is a fact, it goes to confirm the idea, that limestone, in a pulverized state, is equally fertilizing as gypsum.

The subject is important to the farming interest, and certainly merits further investigation. It would not be difficult to erect machinery which would crush the hardest limestone and prepare it for grinding in a common plaster mill.

The facts presented above, and the questions growing out of them, are curious and interesting, and well worthy of the investigation which it is hoped will be bestowed on them. But although it seems sufficiently proved (supposing the specimens to have been fairly selected) that the plaster of N. York (or what is called plaster) generally has a natural admixture of carbonate of lime, it cannot be possible that it is wholly of the carbonate—or that it is *not* gypsum, but a limestone formation. It is sufficiently remarkable if the admixture of carbonate of lime, if in considerable proportion, should to this time have escaped the observation, not only of the plaster dealers, and of the intelligent agriculturists, but also of the chemists and geologists who have examined this extensive and valuable formation. The doubts suggested on this head, will, doubtless, serve to bring forward early and satisfactory explanations. The description given of the substance sold by Mr. Moore for plaster, in addition to the test of the acid applied producing effervescence, leaves no doubt of its being principally composed of carbonate of lime: but with all our confidence in this form of lime, as a manure—and deeming it, when applied in sufficient quantity, far better as an improver, than gypsum—still we cannot believe that it can produce, in such very small quantities as gypsum is given, effects that could be mistaken for those of gypsum—or indeed any effects that would be certainly perceptible. Pulverization would greatly aid the immediate action of shells, or limestone, by enabling every atom to operate at once: but even with all this aid, the effect of sowing a bushel of pulverized limestone, or shell marl, could not be mistaken for that of gypsum. Our inference is, that, Mr. Moore's limestone (or marl) contains a large proportion of gypsum, or of some other fertilizing substance than merely the carbonate of lime.

If we have not misunderstood the words of the private letter which accompanied the foregoing article, the writer had sent the same to the Journal of Science, and in that case, the subject will, doubtless, be properly attended to by Professor Silliman. Though not authorized to use the name of the writer of this communication, we can say that none would be better authority.

From the Maine Farmer.

BUTTER.

MR. HOLMES:—As great improvements may be made in the quality as well as quantity of butter from the same milk, by some variation from the common mode of managing the milk—I have therefore made some extracts from a valuable English publication in my possession, entitled a Complete History of Modern Agriculture, by R. W. Dickson M. D.

1st. *Exp.* Several large tea cups exactly similar in size and shape were filled at regular intervals, the last being filled with the dregs of the milk. From some cows the quantity of cream obtained from the last drawn cup, exceeded that from the first in the proportion of 16 to 1.

2d. The difference in quality was greater than the difference in quantity. In the first cup the cream was a thin tough film, and very white, but in the last of a thick buteraceous consistence, and of a glowing richness of color, that no other kind of cream is found to possess.

3d. The difference in the quality of the milk was perhaps still greater than either, in respect to the quantity or the quality of the cream. In the first cup it was a thin bluish liquid, as if a large portion of water had been mixed with ordinary milk; while in the last cup it was of a thick consistence and yellow color, more resembling cream than milk both in taste and appearance.

4th. The cream which first rises is richer in quality and greater in quantity than what rises in a second equal portion of time, and the like difference in a third space of time and so on.

5th. Thick milk always throws up a smaller proportion of the cream it actually contains to the surface, than milk which is thinner, but the cream is a richer quality; and if water is added to that thick milk, it will afford a considerably greater quantity of cream than it would have done if allowed to remain pure; but the quality at the same time is greatly debased.

6th. Milk which is put into a pail or any other vessel and carried in it at any distance so as to be agitated and in part cooled before it is put into the milk pans to settle for cream, never throws up so much nor so rich cream as if the same milk had been put into the milk pans directly after it was milked.

From the above it follows,

1st. That cows should be milked as near the Dairy as possible, and in addition to its preventing the agitation and cooling of the milk, if pastures are near the Dairy the cows are not heated by driving.

2d. It is highly injurious to put the milk in large Dairies into one vessel as it is milked, to remain there until all the cows are milked before it is put into milk pans, and for an additional reason to the agitation and cooling, that it mixes the bad with the good milk.

3d. The first drawn milk should be kept separate from the last drawn as the *quality* of the butter will be improved in proportion to the smallness of the proportion of the last drawn milk that is retained.

4th, If the quality is only alluded to, it is not only necessary to separate the first from the last drawn milk, but also to take nothing but the cream that is *first* separated from the best milk. The remainder of the milk, may be either employed in making sweet milk cheeses, or it may be allowed to stand to throw up cream for making butter of an inferior quality.

5th. According to the preceeding, the *best* butter could only be made with economy in those dairies where the manufacture of cheese is the principal object. In such dairies a small portion of the last drawn milk should be set apart for butter, all the rest may be made into cheese while it is yet warm from the cow and perfectly sweet, and if only that portion of cream which rises during the three or four hours after milking is to be reserved for butter, the rich milk which is left, after the cream is separated, being still perfectly sweet, may be converted into cheese with as great advantage nearly as the newly-milked milk itself.

6th. As purchasers would not be found wanting to buy the fresh butter made in the manner above pointed out, at the price that would indemnify the farmer for his trouble in making it. These hints are thrown up merely to satisfy the curious in what way butter possessing this superior degree of excellence may be obtained, but for the ordinary market, the writer is satisfied, from experience and attentive observation, that if in general about the first drawn half of the milk be separated at each milking, and the remainder only set up for producing cream, and if that milk be allowed to stand to throw up the whole of its cream, even till it begins sensibly to taste sourish, and if that cream is afterwards carefully managed, the butter thus obtained will be of a quality greatly superior to what can usually be obtained at market, and its quantity not considerably less than if the whole of the milk had been treated alike. This therefore is the practice that is thought most likely to suit the frugal farmer, as his butter though of a superior quality, could be offered at a price that would always insure it a rapid sale.

From the preceding the following course is recommended to farmers, particularly those who have small dairies. Let a quantity of milk from the first drawing, sufficient for family use, including the supply of cream be taken from the cows on a farm, and set the remainder for cream to make butter for the market. It will take less time to convert

such cream into butter, and the butter from such cream will be of a superior quality.

To satisfy myself of the difference in the milk in the first and last drawn from the same cow, I had a tumbler nearly filled with first drawn milk, taking about an eqnal quantity from each teat—a second tumbler was then filled with about an equal quantity, if any thing a little of the last drawing, taking about an equal quantity from each teat. The result was scarcely any cream from the first, and it could not be well sepprated from the milk. The *cream* did not exceed in weight 30 grains, and hardly any yellow particles in the cream—from the last drawing, there was 339 grains of cream, yellow and thick. The milk stood in the tumblers about 10 hours. C. V.

Hatlowell, June 17, 1836.

From the New England Farmer.

FARMERS' WORK.

Grass for hay should not be cut too early, or before it has obtained its growth; for if removed too soon it will shrink very much in drying Agriculturists, however, do not agree relative to the exact period in the growth of grass for hay, when it is best to cut it. Sir John Sinclair asserts that, "In all cases clover ought to be mown *before the seed is formed*, that the full juice and nourishment of the plant may be retained in the hay." But in "Memoirs of the New York Board of Agriculture," Vol. II, p. 30, it is asserted that "all the grasses are more nutritious if not mowed till the seed is fully grown. It should not be entirely ripened however." The Farmers' Assistant also asserts that the best time for cutting herds grass, [timothy] where but one crop is cut in the season is when the seeds of the grass are fully formed, but before they have become fully ripe; but as farmers cannot all cut their hay in a day or two, it is necessary that they should begin before that time that they may not end too long after it. The same time is also proper for cutting clover; or rather when a part of the heads begin to turn brown. Fowl meadow or herds grass may be cut much later without being hurt by long standing."

If it is proposed to mow a piece of grass land twice in a season, the first crop should be cut earlier than when it is mowed but once, not only to give a longer time for the growth of the second crop, but to prevent the roots of the grass from being too much exhausted in producing the first crop. When it is proposed to save the seeds of red clover it is particularly important to cut the first crop early, so that the second from which the seeds are usually procured may be sooner ready for cutting in autumn.

Some regard should be had to the weather in cutting grass for hay, especially if that grass is clover, which requires much attention and favorable circumstances to fit for the mow or stack. If the weather is wet, or the season presents what farmers call *a catching spell*, clover we are told, will stand a fortnight without sustaining any material injury by the shedding of the leaf or the blossom; for the same weather which renders it improper to mow this grass continues it in a growing state, and prevents the bloom from withering or disappearing.

It has been stated by good practical cultivators that if grass when mown is carefully turned every day it will injure but little. Turning it every day prevents it becoming mouldy and of little value.

There are various modes of making hay described by authors and practised by cultivators. The following is, perhaps, as correct as any. Let the farmer be at his mowing early in the morning, cut down as much as possible by nine or ten o'clock, by which time the dew will generally, be off; then spread the mowed grass evenly, and about twelve turn it over where it lies thick; in the afternoon rake it into winrows, shake it up lightly that it may be the better exposed to the air; towards sundown make it into neat small cocks, and let it remain so a day or two. If it be not then sufficiently dry, shake it out again on a small space of ground, and turn it over till it is dried; then cock it again, and as soon afterwards as possible draw it in.

"But in order to save much trouble in drying hay, the application of from four to six quarts of salt to the ton is recommended. It is found that hay thus salted, can be well saved in a much better state, and at the same time the benefit which the hay derives from the salt is more than four fold its value."

Dr. Dean observed as follows: "Were it not for the labor and cost, a good way of hay-making would be for the hay-maker to follow at the heels of the mower, at least as soon as the dew is off, and spread the swarths even'y; make it up into cocks before night, open the hay and turn it the next day; and so on till it be sufficiently dried, doubling the cocks, if signs of rain appear. It will not commonly take more than two or three days to dry it, unless it be very green, or uncommonly thick and rank."

The practice of the best English, Flemish and French farmers is to expose hay as little as possible to the sun. It is carried in dry, but preserves its green color; and hay of two or three years old appears so bright that you would scarcely conceive it to be cured. Yet they preserve it for years, and value it the more for its age. In Scotland "the best managers disapprove of spreading out clover, or rye grass hay. The more the swath is kept unbroken, the hay is the greener and more fragrant."

There is, however, difference of opinion on the subject of curing clover hay in the swarth without spreading. The Albany Cultivator recommends substantially, the Scotch method, or the curing of clover hay without spreading the swarth. [See N. E. Farmer, Vol. XIII. p. 406.] But a writer for the N. E. Farmer, Vol. XI. p. 2, with the signature W. B. whom we know to be a judicious practical Farmer, objects to attempting to cure clover in the swarth or in cocks. He says, "all directions for making hay in this country without the sun, are worse than useless. Clover, like other hay, to be good for anything must be dried in the sun; care should be taken not to waste the leaves, and much more not to waste the stalks. Cut it when rank, as soon as half of it is headed out; give it nearly three days of sunny weather, and depend on it, your cattle will eat both stalk and leaf, and fatten on it."

From the Silk Culturist.

FEMALE INDUSTRY APPLIED TO SILK CULTURE.

The following facts are not only creditable to the female industry of the country, but conclusively prove that female labor, when judiciously applied, receives its full reward. Last summer a venerable matron of Franklin county, Pa. seventy-six years of age, with the aid of a girl, in five weeks made and sold silk to the amount of $60, besides attending to the ordinary duties of her household. Two young ladies in the same county, in about six weeks, made silk, sufficient for 4000 skeins of sewing silk, which at five cents a skein, amounted to $200. There are growing in the town of Hebron in this state, eight white mulberry trees from ten to twelve years old, from which silk was made the last summer by two young ladies of Mansfield. They spent five or six weeks in Hebron, and, after paying all expenses of board, &c. carried home $60. Another young lady in Mansfield made silk the last summer at the halves. She made and reeled in nine weeks twenty pounds, worth at least $4,50 a pound. By this it will be seen that her share amounted to $45, and that she received $5 a week for her labor.

We might go on and state facts of this kind, *ad infinitum:* but these are sufficient to prove that female labor, when applied to profitable objects, receives a liberal remuneration. Philanthropists have expatiated at great length, and with much good feeling, on the deplorable condition of females on account of the depressed price of their labor—they express and no doubt feel, a tender sympathy for females dependent on their labor for support; but, like most others who make less pretentions to sympathetic benevolence, are prone to suffer their commisseration to evaporate in prayers and good wishes for an amelioration of their condition, instead of prompting them to laborious exertions in devising and maturing plans for their relief. It is true, female labor, when compared with male, receives a small compensation; but at the same time it must be admitted that it will always command an equivalent for the value of the services rendered. This disproportion in price grows out of the nature and profits of the object on which labor is bestowed, rather than the amount of skill or physical power rendered. The value of skill and strength is materially diminished by its being inappropriately applied. The skill of a miniature painter would be worth but little if applied to the tarring of fruit trees to prevent the ascent of insects, or the strength of a Hercules, if devoted to embroidery or other needle work, requiring mere dexterity and skill. The only way in which females can increase the value of their labor, is by seeking out objects, on which to bestow it, which yield to themselves and their employers greater returns

of profit. Among these the culture and manufacture of silk, is a prominent one. The services of a healthy female in rearing the silk worm and reeling silk, are worth as much, and will command as high a compensation as those of the most athletic male; but their labor would command but a small price if applied to building stone wall in New England, or clearing the forests of the West,—and for the best of all reasons, it would be misapplied and consequently worthless. The secret of rendering male or female labor valuable and ensuring it an adequate and equitable reward, consists in applying it to objects, not only valuable in themselves, but which are capable of being made the means of accumulating wealth.

From the New England Farmer.

EXTRACT OF A LETTER DATED PARIS, (FRANCE) APRIL 30, 1836.

"I have lately seen an article published concerning potatoes, which, perhaps may possess some interest. The following is a summary. In a letter from a Mr. Bonnet, of Boulogne, to Mr. Poiteau, he says, that about the middle of July, wishing to obtain some potatoes of a very early kind, he procured some stalks which a neighbor had pulled up, and from which he had taken all the potatoes, but had left the fibrous roots. Mr. B. cut off these stalks about eight inches above the roots, and set them out in holes about six inches deep, and large enough to spread roots, and watered them immediately. The next morning he found the stalks firm and upright, but as the season was dry, he covered them with flower-pots, inverted; by night they had wilted he therefore watered them, but left them without the flower pots, so that they might have the benefit of the night dews. He proceeded in this manner during four days, after which they no longer appeared to wilt; they soon sprouted and leaved anew. At the proper time he hilled them, and left them to themselves. About the middle of September he dug them up, and found that they had produced a fine crop of potatoes, and even muchs uperior to the first crop.

We take the following letter in relation to the Sugar Beet from the New England Farmer. It relates to a subject which is becoming of much interest in France, and will we doubt not attract attention, and become a profitable business in this country.

SUGAR BEET SEED.

Washington, June 27, 1836.

THOMAS G. FESSENDEN, ESQ.

Dear Sir—I have procured a small quantity of the seed of Sugar Beet, which I shall send to you to-day by Mr. William W. Stone, who will be in Boston on Friday or Saturday of this week. The cultivation of this vegetable, and the manufacture of sugar from it in France has become of great consequence in that country, and is, I think, attracting much attention on this side the Atlantic. It appears to me the cultivation of the Beet in some of the Western States can be carried forward with great success. I do not know whether it can be made profitable in New England, but will thank you to distribute the seed I now send to you among our agricultural friends,—and to accept the assurances with which I remain, dear sir,

Your faithful and ob't serv't.

ABBOTT LAWRENCE.

By the Editor.—The above with the parcels of Sugar Beet seed therein alluded to, have laid us under renewed obligations to the Hon. writer, whose patriotic efforts promote the most important interests of his country, deserve the gratitude of every friend to mankind. We shall distribute the seeds in small portions among cultivators who will be likely to make the most of them. As the season is far advanced, it will, we think, be advisable to soak the seeds in warm water at least 48 hours before planting, which will much accelerate their germination.

VENTILATION OF THE HOUSES OF PARLIAMENT.

(Extracts from the Evidence of Dr. Reid, F. R. S. E., President of the Philosophical Society of Edinburgh, &c., before a Select Committee.)

Have you at all turned your attention to the subject of ventilating and warming large public buildings, as well as to the practical application of acoustics to the construction of buildings? I have paid considerable attention to both these subjects; I have had my attention particularly directed towards the subject of ventilating large buildings; more especially from the circumstance, that on some occasions in my class-room there are 2,000 experiments performed within the hour, and unless every thing were managed with the utmost precision, the student would be obliged to retire from the class-room in consequence of the fumes that are disengaged. The means I adopted were simply taking advantages of a current which is determined by means of a column of heated air; a large furnace is kindled, and wherever it is necessary to carry off fumes, or to ventilate an over-crowded or heated room, an aperture is made into that vent, or otherwise connected with it leading the air or fumes from the place to be ventilated.

Where do you place the heating apparatus for that purpose? It is placed upon the floor—a few feet above it; it plays into a large vent, and wherever an opening may be made in that vent, an internal current—a current into the vent—is immediately set in motion, care being taken at the same time that there shall be as free room given for the entrance of fresh air at a different place, as there is for the exit of the heated air.

Would you advise that such an apparatus should be placed on the floor of the House of Commons, which is the building to which the Committee is at this time devoting its attention?—By no means; I would have it worked in an independent apartment. It is fitted up on the floor in my class-room because we take advantage of the heat; we find we can carry on a number of furnace operations, of a particular description, with a moderate heat, with the same fire which induces and regulates ventilation; that being no object whatever, for the purpose required in the House of Commons, it would be better to have the furnace in another place where it would not be inconvenient.

Whether you place the apparatus below, or in or above the room to be ventilated, it is immaterial?—It is of no great consequence; but this is to a certain extent of consequence, that if placed in such a manner, that there shall be a current, we may draw the air from the House of Commons, not merely by the vent, but by the lower part which supplies the fuel of the furnace with air, thus furnishing it with additional power; I wish to take advantage not only of the current which is made to ascend from the lighter current produced by the heat, but also to draw from the House of Commons the air that feeds the fire.

If the furnace were situated in an apartment immediately over the House of Commons, the air from the House of Commons would rise to it and create that draught, would it not?—It might create a little draught, but the power as produced by the furnace is dependent upon the light and expanded air rising from the fire; at times we have the air warmer without than within, and were it not for the heat actually developed by specific combustion, our currents might sometimes be reversed.

But under any circumstances, do you propose for the purpose of ventilation to have the vent tube placed in the chamber to be ventilated? There is not the slightest necessity for it; if a communication is made by a tube towards the vent, that is all that is essential.

From whatever place the supply of air is taken, ought it not to be a spot freely open to the action of the winds and atmosphere? It would be preferable.

Do you contemplate that when the House is crowded the ventilating apparatus should also be used at the same time?—It should be ready for powerful action at all times; but I would not propose that the ventilating apparatus should be brought into full action until it was absolutely necessary; it could be worked always in such a manner as the varying circumstances of the case might require; I should of all things wish to avoid any accumulation of bad air, so that it became necessary to use the ventilating apparatus with great power; but I would not put on the ventilating apparatus until Members actually began to assemble, and from that moment the ventilating apparatus being in action, it would be better to keep up the purity of the atmosphere by a general and equal flow, than by allowing bad air to accumulate and then working it with great power. In many of the buildings which I have seen there is not nearly sufficient exit and entrance provided for the quantity of air required, so that when the windows are afterwards thrown open, cross draughts are induced in every direction.

It is your opinion, that in constructing

the building generally, reference should be had to the position of the doors and windows, as well as to any ventilating apparatus that may be applied to secure good and proper ventilation?—The utmost attention, I think, should be paid to this, if it be intended to use them at times to assist the ventilation; but I would strongly recommend that they should never ventilate at all by doors (that there should be double doors,) nor by the windows, except under the most peculiar circumstances. There might be arrangements made with advantage for throwing open the room by doors and windows to a certain extent; but if provision be made by other means, the ventilation will be completely under control when there is a power which can be regulated. The moment we begin to ventilate by doors and windows we may refresh those who are very near, but we have a sweeping current that runs in a particular direction, and there is no equality of ventilation; some may be refreshed or perhaps injured by the draught under such circumstances, but there will be no equality of diffusion; and others may receive no fresh air at all.

Do you suppose that the same ventilating apparatus might be made applicable to the House and the Committee-rooms of the House in the morning?—That is what I should wish to see done in every large establishment, and not only the ventilation of the large room, but also tubes connected with the smaller apartments, and valves arranged so that the apparatus might work exactly in the same manner as water or gas in pipes laid through a city. If there be one great chimney or ventilator through which every thing is to pass, by opening or shutting a valve in every individual room or apartment, be it what it may, any degree of ventilation can be commanded that is required. But a general difficulty has arisen in consequence of these provisions in most places not having been made any thing to the extent that is absolutely necessary; consequently, when in full action, the doors and windows are thrown open all at once, and it disturbs every thing like unity of operation. There is another thing connected with ventilation as conducted by heated air, namely, that it is not liable to the noise produced when the ventilation is induced by the working of a fanner or other common mechanical power put in action by machinery. Further, the same power dependent upon the application of heated air will also enable cold air to be thrown in whenever it may be necessary, which may be artificially depressed in its temperature in warm seasons; this would give great relief when there are months together of continuous hot weather. I should wish to see, not only arrangements for renewing air and warming it in the winter, but for cooling it in summer, which I think might be done with very great facility.

You do not contemplate the principle of regulating it by a self-regulating action?—I should almost doubt whether that could be done; I do not say it might not ultimately be effected; but I have seen such a great number of ventilators fail in this respect, being subject to such a number of influences, that unless we were almost to attribute to them a kind of mental reaction, they could scarcely adapt themselves with precision to the varied circumstances under which they must act; but any ordinary attendant may be taught, by a little attention to the thermometer and the number of Members present, to increase or diminish the working of the apparatus to any extent.

A thermometer might be placed in some great thoroughfare, so as to be open to inspection?—Yes, it might be placed in the body of the House, so as always to be before the Members. One might easily be constructed for this purpose, both large and sufficiently delicate to be a constant check upon the ventilating apparatus; the usual register-thermometer might also be used, so that a most complete check may be obtained over the machinery, and the attendance of the person engaged in conducting it, at times when no one might be present to examine the heat, &c.

Supposing the thermometer rose very suddenly, do you think that then the apparatus you are talking of would rapidly reduce that apartment to a proper state of ventilation? It could be made to work to any extent. I may mention, on several occasions, gentlemen may have come in from at distance, foreigners and strangers, to see the working of my ventilating apparatus; when there was nothing doing in the laboratory, we have put on the fire with a few pieces of wood, in the course of five minutes we were able with that to bring it into such a state of activity that fumes produced in showing some experiments were carried with great rapidity by these ventilators, which in the course of three minutes, would have filled the room to such an extent that we should have been obliged to go out, had they not been in action.

With regard to one apparatus being efficient in ventilating the new Houses of Parliament, and all the Committee-rooms and other buildings, should you adduce that as an advantage in point of economy, or in point of general equability of ventilation? In every point of view; better than having more than one, for a small power is quite sufficient to work a great number of small ones.

Taking the Houses of Parliament, without going to the other rooms, suppose there are thirty Committee-rooms, would you say that one apparatus should be sufficient to ventilate all this over a large surface of ground, as well as the House of Commons and the House of Lords in the same way? They might all be ventilated by one large furnace.

It is rather a matter of judgment, arising from the extont and number of apartments, than any thing else, as to how many of those furnaces you would have? It may be more economical to have two large ventilating furnaces if the rooms are very much apart, than to carry all the independent flues a very great length.

Can the tubes be conducted to any considerable distance from the room to the apparatus? To any length almost; I have seen them conducted hundrds of feet without any material difference.

You would not have the tube of so large a diameter as to occasion inconvenience in making the building originally? A tube so very large and inconvenient would not be required; but every thing would depend on the primary arrangement made by the architect; it is not a thing to be added, but to be seen from the foundation, and all those flues could be carried under ground, and there would not be the slightest necessity for one to be conducted in any way where it would interfere either with ornaments or any thing connected with the building. You may carry the air down as easily as you can carry it up. I admit, indeed. that the movements induced during the rarefaction of air are such that it would be more easily carried up than otherwise; but yet, with furnaces, the difference is not so great as to make a decided alteration in any plans connected with the arrangements of the ventilating tube.

You would be more liable to a return current in case of any mismanagement of the tubes, in case you convey them down from the ceiling of the room? Yes, I admit that; but, at the same time, when the furnace is attended to with moderate care, I should not anticipate there would be any danger of those accidents occurring.

As to the admission of air for the House of Commons, how would you propose to arrange the tubes for its admission; would you distribute them over the floor, or would you admit the air at one great aperture?—I should prefer that the air were taken out at one aperture, but admitted by a great many, and broken as much in its impetus as possible by the division of the tubes, as far as that could be effected; and if no arrangement be adopted for preparing the air in its temperature before it be admitted into the House, which I consider the most effectual mode of conducting a proper system of ventilation, I should perhaps be inclined to prefer that the air should be admitted at a little height, than exactly on the floor or on the ground, for though the air be admitted from the floor in 10,000 little apertures, still there is some danger of the Members feeling the effect of the direct introduction of the cold air in very cold weather. This system must necessarily be considered defective, as the cold air, though broken in its force before it could reach the Members, would tend to carry along with it a portion of the respired air with which it must necessarily mix; whereas by introducing over the body of the floor the whole of the fresh air at a regulated temperature, air once respired would be carried away, and the atmosphere would never be of that oppressive character which often increases to such an extent in some buildings, where the respired air is not so easily carried away, as to produce a very powerful sedative effect, often accompanied by severe headache, more especially when it is necessary to maintain a continued and anxious attention to any subject under discussion.

The evils of a current of a certain velocity may be equally great whether the air be moist or dry?—There must be a difference there; a very dry current of air passing across the face may produce a very different effect from a very moist one; I would consider it of equal importance, indeed of much more importance to divide the current of air than of cold air, because when a current of cold air is introduced, it naturally falls down and diffuses itself; but if hot air be introduced from any particular source, and in great quantity at one place, that will rise in a stream to the top, without benefiting those in the body of the building. We have had remarkable instances of that in public buildings, which it was said could not be heated, though great sums were expended upon them. At a distance of twenty or thirty feet from the floor there might often be observed a stratum of air at a temperature above that of boiling water, while below the air has been disagreeably cold.

In the admission of warm air to supply the room, it would be necessary to distribute the apparatus evenly over the whole surface of the floor?—As widely as possible.

And as numerously as possible?—Yes, so far as it could be conveniently done, the heating surface on the floor could not be too extensive.

It is necessary to conduct the heated air over the whole surface of the floor, and not to trust to an apparatus radiating the heat? I should think it absolutely necessary to conduct the heated air when it is supplied in currents; but if you have different stoves heated by steam in different parts of the building, or surfaces of iron heated by hot water or otherwise, that may make a great difference. The great objection to stoves or large plates heated by water or steam, is the unequal currents which necessarily accompany them, and the return of respired air in a descending stream. In all lofty buildings, it is impossible to have that sweet and fresh atmosphere which might be so easily commanded in a less elevated apartment, where a stream of air might be made to rise slowly but continually from the floor to the top of an inclined roof, to be removed there by the ventilator. A lofty room is generally preferred, because, from the mass of air present, a long time is necessarily required to contaminate it; but when prolonged debates are carried on, it is evident that the very cause which prevents it from being contaminated to such an extent at first, will render it exceedingly difficult to renew the air when once it shall have been vitiated.

Would you propose to regulate the velocity of the air admitted by artificial means, or trust to its change of place simply by its altered gravity?—I would propose to have every part of the ventilating apparatus under precise control, without that, it is utterly impossible to adapt the currents to the varying circumstances of the place; arrangements ought to be made to cut off the supply entirely, to exchange a pipe of cold air for the hot air, and, in short, to effect any change upon the currents we may wish at a moment's notice.

Those apertures might be so regulated, that a person sitting in another room, by turning a handle, might open or close the valves?—Yes; it is easy to do that; at the same time it would be necessary to have them all under some general control or superintendence in case of their not acting harmoniously together.

THE ICE TRADE BETWEEN AMERICA AND INDIA.

The arrival of the Tuscany with a cargo of ice from America forms an epoch in the history of Calcutta worthy of commemoration, as a facetious friend remarked, in a medal, of *frosted* silver. In the month of May last we received a present of some ice from Dr. Wise at Hugli, (whose efforts have been so long directed to the extension of its manufacture by the native process,) as a proof that the precious luxury might be preserved by careful husbandry until the season when its coolness was the most grateful, little did we then contemplate being able to return the compliment, with a solid lump of the clearest crystal ice at the conclusion of the rains! nor that we should be finally indebted to American enterprise for the realization of a pleasure for which we have so long envied our more fortunate countrymen in the upper provinces; nay, even the beggars of Bokhara, who in a climate at times more sultry than ours, according to Lieutenant Burnes, "purchase ice for their water, even while entreating the bounty of the passenger." Professor Leslie with his thousand glass exhausters, and his beautiful steam-air pumps, tantalized us with the hopes of a costly treat, and ruined poor Taylor, the bold adopter of his theory; but Science must in this new instance, as on many former occasions, confess herself vanquished or forestalled by the simple practical discovery, that a body of ice may be easily conveyed from one side of the globe to the other, crossing the line twice, with a very moderate loss from liquefaction.

We are indebted to Mr. J J. Dixwell, the agent of the proprietors, for the following interesting particulars relative to the Tuscany's novel cargo, and the mode of shipping ice from America for foreign consumption.

The supplying of ice to the West Indies and to the southern States of the Union, New-Orleans, &c., has become within these few years an extensive branch of trade under the successful exertions of its originator, Frederick Gudar, Esq., of Boston, with whom S. Austen, Esq., and Mr. W. C. Rogers, are associated in the present speculation.

The ponds from which the Boston ice is cut, are situated within ten miles of the city; it is also procured from the Kennebec and Penobscot rivers, in the state of Maine where it is deposited in ice-houses on the banks and shipped from thence to the capital. A peculiar machine is used to cut it from the ponds in blocks of two feet square, and from one foot to eighteen inches thick, varying according to the intensity of the season. If the winter does not prove severe enough to freeze the water to a convenient thickness, the square slabs are laid again over the sheet ice, until consolidated and so recut. The ice is stored in warehouses constructed for the purpose at Boston.

The shipping it to the West Indies, a voyage of ten or fifteen days, little precaution is used. The whole hold of the vessel is filled with it, having a lining of tan, about four inches thick, upon the bottom and sides of the hold; and the top lifts covered with a layer of hay. The hatches are then closed, and are not allowed to be opened till the ice is ready to be discharged. It is usually measured for shipping, and each cord reckoned at three tons; a cubic foot weighs 58½ lbs.

For the voyage to India, a much longer one than had been hitherto attempted, some additional precautions were deemed necessary for the preservation of the ice. The ice hold was an insulated house, extending from the after part of the forward hatch to the forward part of the after hatch, about fifty feet in length. It was constructed as follows:—a floor of one inch deal planks was first laid down upon the dunnage at the bottom of the vessel; over this was strewed a layer, one foot thick of tan; that is, the refuse bark from the tanners' pits, thoroughly dried, which is found to be a very good and cheap non-conductor: over this was laid another deal planking, and the four sides of the ice hold were built up in exactly the same manner, insulated from the sides of the vessel. The pump, well, and main-mast, were boxed around in the same manner.

The cubes of the ice were then packed or built together so close as to leave no space between them, and to make the whole one solid mass: about 180 tons were thus stowed. On the top was pressed down closely a foot of hay, and the whole was shut up from access of air, with a deal planking one inch thick nailed upon the lower surface of the lower deck timbers; the space between the planks and deck being stuffed with tan.

On the surface of the ice, at two places, was introduced a kind of float, having a guage rod passing through a stuffing-box in the cover; the object of which was to denote the gradual decrease of the ice, as it melted and subsided bodily.

The ice was shipped on the 6th and 7th of May, 1833, and discharged in Calcutta on the 13th, 14th 15th, and 16th of September, making the voyage in four months and seven days. The amount of wastage could not be exactly ascertained from the sinking of the ice-guage; because, on opening the chamber, it was found that the ice had melted between each block, and not from the exterior only, in the manner of one solid mass, as was anticipated. Calculating from the rods, and from the diminished draught of the ship, Mr. Dixwell estimated the loss on arrival at Diamond Harbor, to be fifty-five tons, six or eight tons more being lost during the passage up the river; and probably about twenty in landing.—About one hundred tons, say three thousand maunds, were finally deposited in the ice-house on shore; a lower room in a house at Brightman's Ghaut; rapidly floored, and lined with planks for the occasion.

The sale has not, we believe, been so rapid as might have been expected, amounting to no more than ten maunds per diem, although Mr. Rogers has fixed the price at the low rate of four annas per seer, one half of the price estimated for the Hugli ice, which was calculated to be somewhat cheaper in proportion than saltpetre. The public requires to be habituated to it, and to be satisfied of the economy of its substitution for the long-established process of cooling. There may also be some doubts of the best mode of preserving so fleeting a commodity; but on this head we cannot but advise an imitation of the methods pursued on a large scale on board of the Tuscany. For the application of the ice to the purposes of cooling ample directions have

been given in the "Gleanings of Science," vol. iii. p. 120. A box or basket, or tin case, with several folds of blankets, or having a double case lined with paddy chaff, or any non-conducting substance, will preserve the ice until wanted; and for cooling water or wine, the most effectual method of all is to put a lump of the clear crystal into the liquid. The next best is to spread fragments upon the bottles laid horizontally, and have them wrapped in flannel for a couple of hours.

So effectual was the non-conducting power of the ice-house on board, that a thermometer placed on it did not differ perceptibly from one in the cabin. From the temperature of the water pumped out, and that of the air in the rim of the vessel, Mr. Dixwell ascertained that the temperature of the hold was not sensibly affected by the ice. Upon leaving the tropic, and running rapidly into higher latitudes, it retained its heat for some time; but after being several weeks in high latitudes, and becoming cooled to the temperature of the external air and sea, it took more than ten days in the tropics before the hold was heated again to the tropical standard.—*London Mechanics' Magazine.*

THE BANIAN TREE.

This tree which is also called the Burr tree, or the Indian Fig, is one of the most curious and beautiful of nature's productions in the genial climate of India, where she sports with the greatest variety and profusion. Each tree is in itself a grove; and some of them are of an amazing size and extent, and, contrary to most other animal and vegetable productions, seem to be exempt from decay. Every branch from the main body throws out its own roots; at first, in small, tender fibres, several yards from the ground; these continually grow thicker, until, by a gradual descent, they reach the surface, and there stick in, they increase to large trunks, and become parent trees, shooting out new branches from the tops. These, in time, suspend their roots, and receiving nourishment from the earth, swell into trunks, and shoot forth other branches; thus continuing in a state of progression, so long as the earth, the first parent of them all, contributes her sustenance.

A Banian tree, with many trunks, forms the most beautiful walks, vistas, and cool recesses, that can be imagined. The leaves are large, soft, and of a lively green; the fruit is a small fig, when ripe, of a bright scarlet, affording sustenance to monkeys, squirrels, peacocks, and birds of various kinds, which dwell among the branches.

The Hindoos are peculiarly fond of the Banian tree; they consider its long duration, its outstretching arms, and its overshadowing beneficence, as emblems of the Deity, and almost pay it divine honors. The Bramins, who thus find a fane in every sacred grove, spend much of their time in religious solitude, under the shade of the Banian tree; they plant it near their temples or pagodas; and in those villages where there are no structures erected for public worship, they place an image under one of these trees, and there perform a morning and evening sacrifice. The natives of all casts and tribes are found recreating in the cool recesses, beautiful walks, and lovely vistas of this umbrageous canopy, impervious to the hottest beams of a tropical sun. These are the trees under which a sect of naked philosophers, called Gymnosophists, assembled in Arian's days, and this historian of ancient Greece presents a true picture of the modern Hindoos. In winter, he says, the Gymnosophists enjoy the benefit of the sun's rays in the open air; and in summer, when the heat becomes excessive, they pass their time in cool and moist places, under large trees, which, according to the account of Nearchus, cover a circumference of five acres, and extend their branches so far, that ten thousand men may easily find shelter under them.

On the banks of the river Narbuddy, in the province of Guzzarat, is a Banian tree, supposed by some persons to be the one described by Nearchus, and certainly not inferior to it. It is distingnished by the name of Cubbeer Burr, which was given it in honor of a famous saint.—High floods have, at various times, swept, away a considerable part of this extraordinary tree; but what still remains, is nearly two thousand feet in circumference, measuring round the principal stems; the overhanging branches, not yet stuck down, cover a much larger space, and under it grow a number of custard, apple, and other fruit trees. The large trunks of this single tree amount to three hundred and fifty; and the smaller ones exceed three thousand; every one of these are constantly sending forth branches and hanging roots, to form other trunks, and become the parents of a future progeny. The Cubbeer Burr is famed throughout Hindoostan not only on account of its great extent, but also of its surpassing beauty. The Indian armies generally encamp around it; and at stated seasons, solemn Jattaras, or Hindoo festivals, to which thousands of votaries repair from every part of the Mogul empire, are there celebrated. It is said that seven thousand persons find ample room to repose under its shade. It has long been the custom of British residents in India, on their hunting and shooting parties, to form extensive encampments, and spend weeks together under, this delightful and magnificent pavilion, which affords a shelter to all travellers, particularly to the religious tribes of the Hindoos.

It is generally filled with greenwood pigeons, doves, peacocks, and a variety of feathered songsters—with monkeys, which both divert the spectator, by their antic tricks, and interest him by the paternal affection they display to their young offspring, in teaching them to select their food, and to exert themselves in jumping from bough to bough. This tree affords not only shelter, but sustenance to all its inhabitants, being covered amidst its bright foilage with small figs, of a rich scarlet, on which they all regale with as much delight as the lords of the creation on their most costly fare, in their parties of pleasure.

This tree, which is doubtless one of the most singular and magnificent objects in the vegetable kingdom, appears to be a world in miniature, in which thousands both of the human beings and of the inferior tribes that traverse the earth and air, may find ample accommodation and subsistence. What a striking contrast does it present to the forests of trees, or mushrooms, which are perceived by the aid of the microscope, in a piece of mouldiness—every plant of which is several hundred times smaller than the point of the finest needle! Yet both are the effect of the agency of the same all-wise and omnipotent Being. And what an immense variety of gradations is to be found in the vegetable world, between these two extremes—every part of the vast interval being filled up with flowers, herbs, shrubs, and trees of every color, form, and size, and in such vast multitudes and profusion, that no man can number them.

We republish the following for the benefit of our readers, several of whom have made enquires how to obtain the N. Jersey marl.

Mr. Robert White, of Sherewsbury, New Jersey, or Mr. Geo. B. Thorp, of this city, can give further information where and how it can be obtained.

From the New-England Farmer.

MARL FOR MANURE.

We have received by the kindness of William Rhodes, Esq., a sample of New Jersey Marl, referred to in the following advertisement, which we place under our editorial head that its location may be as conspicuous as possible.

To the members of the Rhode Island Society for the Encouragement of Domestic Industry—The Treasurer of the Society has procured a barrel of Marl from Monmouth, which he proposes to divide gratuitously among such members of the society as wish to make an experiment of the same either as a specimen to compare with our own beds of Fossil Manure, (which we doubtless have and now lie dormant) or on the crops of the present seasons.

It may not be amiss to say that by the use of this valuable fossil manure, the lands in the vicinity of the beds in New-Jersey have been increased in value double, and in some instances treble. Apply at the store of

C. & W. RHODES,
Peck's Wharf, Providence, R. I.

The above notice relates to a subject of very great importance to the best interests, not only of persons engaged in cultivating the earth, but of every human being, whatever may be his occupation, pursuit or circumstances. It has been made abundantly evident by the researches of scientific men, that calcareous substances, or those earths minerals, &c. of which *lime* composes a constituent part are useful not only by promoting the *fertility* but the *health* of a country. It would require volumes to give the facts and theories on this subject which have led to the conclusion that lime purifies the air as well as fertilizes the soil of countries in which it is furnished by nature, or supplied by art.

The following extracts from an article translated for the Farmers' Register, from the *Essai sur la Marne*, of M. Puvis, give important information on the value of marl

to give salubrity to the air as well as fertility to the soil.

The results of marling may be considered in a point of view more elevated, and still more important than that of the fertility which it gives to the soil: they may perhaps have much influence on the healthiness of a country when it becomes a general practice.

Although it may not have been yet uttered by others this opinion appears founded on strong probabilities, on strong analogies and precise facts, all of which appear to give it a sufficient certainty.

It is known that the calcarous principle is one of the most powerful agents to resist putrefaction. It is employed to make healthy places inhabited by men and animals, in which sickness or contagion is feared; it serves to neutralize the emanations of dead bodies undergoing putrefaction; it destroys the deleterious effects which escape from privies, and which sometimes causes the death of those who are employed to cleanse them.

* * * * *

We cannot imagine an action more direct, more close, and more intimate than that of marl on ploughed land. One conceives that it can attack the unhealthy principles in the soil as well, and in the same manner as lime water, or slack lime destroys them, in habitations, on dead bodies, and in privies. These great effects are produced by a single and superficial application. While the addition of marl is made and acts on every part of the ploughed bed; and it is in their own laboratory, before they can be formed, and even in their elements that the principles of insalubrity are attacked.

In short the calcareous principle which changes the nature and productions of all the vegetable mould ought necessarily to change the combinations and modify the elements of them. The emanations of the soil, which are the result of these combinations ought then to change also; and these emanations ought to cease, being unhealthy, because the known and general effect of the calcareous principle is to give health.

* * * * *

We ought not to conclude on this subject without observing that marl, to diminish sensibly unhealthiness in the whole of a country, ought probably to be extended to a great part of its surface. The marl of each farm should cause a diminution of unhealthiness according to what we think, for that property itself and its inhabitants: but they would still suffer from the unhealthy emanations of the neighboring places, which had not been marled. Salubrity would increase in proportion as the general marling would increase; and when the whole surface would experience the benefits of marl, then with the healthiness which would preserve individuals for labor and increase of population, with the fecundity which would offer the greatest products without being obliged to increase the labor, we would see the country advance rapidly towards a better future, &c. &c.

As regards the specimen of New Jersey Marl, sent to us by Mr. Rhodes, we can, at present, give no opinion, as we have not had leisure nor means to analyse it. We hope soon, with the assistance of some friends, who are skilled in chemistry, to be able to give an estimate of its value, and rules which will enable farmers to form an opinion of marl or other mineral manure which they may happen to discover, and wish to apply to some valuable purpose.

From the Farmer and Gardener.

Tuesday, July 12, 1836.

SALE OF IMPORTED STOCK.

The Rev. J. A. Robertson, of whose importation of improved short horn Durhams and Ayrshire cattle we spoke last year, sold a few days since to the Hon. *Harmar Denny*, of Alleghany county, Pa. his splendid young Bull, Buckingham, 2 years and 3 months old, a cow rising 3 years old called Cowslip, and an *Ayrshire* cow between 6 and 7 years old, named *Virginia*, in honor of the old dominion, the State which Mr. Robertson has adopted as the future home of himself and family.

The two first of these animals, are of the very purest blood of the improved short horns, that could be obtained in England. They were selected by Mr. Robertson in person, who besides being an excellent judge himself, enjoyed opportunities and facilities which fall to the lot of few gentlemen. Allied to some of the first families in the empire, and being then on the eve of departing for this country with the view of purchasing an estate for a permanent residence, all of his own, as well as the friends of his family, generously tendered their offices to aid him in his selections of stock, so that his own judgment, which is both shrewd and ripe, was backed by those of his numerous acquaintances. The animals thus auspiciously selected were purchased without regard to price; *superior excellence* in *points*, *handling*, and *pedigree*, being the only objects thought of. He imported them in November last into Philadelphia, and brought them thence to this port by water, whence they were sent to an estate he very soon afterwards bought in Middlesex co., Va. They were bought for his own private use, but having unfortunately for the health and safety of those noble animals, located himself in the tide-water district of Virginia, a region so baleful to the health of horned cattle brought from a distance, as almost to render the death of all introduced therein as certain. Few, indeed, survive the first summer. Thus situated Mr. Robertson found himself compelled, in justice to his own interest, and in humanity to his animals, to dispose of them, in order that they might be saved to the country. This change of his original intention, though felt by him as a sacrifice generously offered up, is the more easily borne as he will return to England in the fall, where he will have an opportunity of making other selections to supply the place of the animals he has just disposed of. When his cattle arrived here last fall, we had the pleasure of examining them, and then spoke of their fine qualities as we thought they merited. Recent opportunities of more thorough examination confirme us in the opinion we then formed, that *Buckingham* and *Cowslip* are among the very best improved short horns ever introduced into this country, and we are certain they will do much in the hands of their present patriotic and public spirited owner to give tone and character to our native stock.

Buckingham is rising 2 years old and has a body of exquisite form and most ample length. He is a dark rich mahogany red and white, the latter so arranged as to give the happiest effect in furnishing relief to the eye. In his port he is majestic and graceful—and as he walked before us the other day through a small grove attached to our barn yard, we almost conceited as he passed from point to point, saluting the females of his tribe, into which he had just been introduced, that he was inspired with as much conscious pride of his own importance as is an Eastern Monarch when the charms of his Harem is unfolded to his longing and enraptured eyes.

He strode onward with an elastic step and head erect, until he came to his own associates, *Cowslip* and *Virginia*, who had preceded him a few weeks,—with these he halted; in them he recognized the matchless companions not only of his voyage across the Atlantic—but of his *love*—for they are both ancient to him, and if he did not pour out with the volubility of a biped, the joy that is *not* felt—he certainly did, with the eloquence of a noble beast, give evidence of his recognition. his good feeling, gallant attention, and unchanged regards. It was impossible to mistake the import of the speechless salutation that ensued—each knew the other, and were all as happy as dumb beasts could be, in meeting again after a separation of a few weeks.

Whatever may be the fate of Buckingham, and his beautiful consorts, Cowslip and Virginia, we feel sure that America owes a debt of gratitude to their late owner, whose generous high souled spirit induced him at so much expense, risk and anxiety of mind, to bring them to the land of his adoption. Nor will the debt be less to our patriotic fellow citizen, Mr. Danny, who, with so much munificent liberality has purchased them with the laudable view of improving the stock of the country. Should he design to offer the services of this high bred Bull, his neighbors should not fail to avail themselves of them, for without derogation from the virtues of any other animal now in our country, we question much whether there is one of his superior in all the attributes of a thorough bred improved short horned Durham.

The following were the prices at which they were sold.

Buckingham, $750.

Cowslip, $400.

Virginia, $300.

Their pedigrees are as follows:

Bull, Young Buckingham—Calved March 24, 1834, by Col. Craddock's Buckingham, Dam by Scipio, g. d. by old Stephen.

Scipio and Stephen were the property of Mr. Charge, one of the most eminent breeders in the county of Durham. *See Herd Book.*

Stephen was directly descended from *Comet*, which was sold for 1000 guineas. *Old Buckingham* won the *Barnard Castle* prize in *Durham*, and was got by *Ephygum*, dam by Young *Rockingham*, g. d. by *Wonder*. Ephygum, was by *Old Rockingham*, and won a premium in *Manchester*.

Heifer, Gowslip, is a beautiful fashionable roan of great size, fine form, and rising 3 years old, got by Architect, dam by *Rob Roy*, g. d. Mr. *Thornton's George*, g. g. d. *Burdon*. *Architect* was got by *Highflyer*; dam *Lady Brough*, a celebrated cow, sold at Mr. Wytham's sale, of Darlington. She is in calf by Buckingham. *See Herd Book.*

Highflyer was sold to Capt. Davis, at Mr. Mason's sale. of Clinton, for 201 guineas; *Rob Roy* was a first rate bull of Col. Craddock's. *Cowslip* is now in calf by Young Buckingham.

Virginia, a light red and white, imported by the most noble the Marquis of Westminister, from *Ayrshire*, in April 1831, she was then 15 months old. She is of the stock of Mr. Aiton, and is also in calf by Buckingham.

DIFFICULTIES OF IMPORTING STOCK.

Mr. E. P. Roberts—

Dear Sir:—In reply to your remarks con-

cerning English prices of short horns, I beg leave to state a few fact, which I shall do with all due respect for the gentleman whose recent importation has been assumed as an apparent criterion for fixing an estimate upon mine. A native of America, and particularly one whose inexperience, want of connexion in the country, and pursuits, unfit him for such an agency, must run great hazards at every step in travelling through the great cattle county of Durham in search of choice short Horns. He is suddenly ushered in amongst a shrewd, wary body of men, many of whom will not hesitate to extol their cattle, and urge forward their sale thereby upon their pedigree and parts, at the expense of truth and honesty. The confiding stranger becomes presently inspired with confidence by the cordiality of his reception, and may be induced to make a purchase of an animal which had been fastened upon his fancy by these means and in all probability would be afterwards recommended to a neighboring breeder, with whom his late host was in concert, in regard of trepanning a foreigner into a purchase of imperfectly bred animals with defective pedigrees, and this is practised with more impunity upon a foreigner and inconsiderate amature in cattle, knowing that the former would be without the reach of complaint, while the latter, would be looked upon as a novice in the trade with more means than brains, would be laughed at as a novice and told to profit by his experience.

As regards the expense of importation, which appears to have been very much und rrated, we behold the constant risk of losing the animals by nautical and other contingencies, (that can only be estimated by professed breeders,) with much more solicitude than any incidental cost of transportation abroad.

I may have been lavish, in my own expenditure, but I consider myself amply repaid in the enjoyment of the gratification which I assure you I derive, 1st, in having been the humble means of bestowing a permanent benefit upon the the soil of my adopted country, and 2nd, in having landed these valuable and matchless animals in health and condition, without a bruise or injury of any sort; which your own experience will doubless instruct you has seldom, if ever been done. There are numberless trifling precautions which would escape the minde of an unsteady minded person, and which can only be seen by the exertion of thought, which materially contribute to the safety and health of the animals, to say nothing of the veterinary skill frequently required aboard the ship, the want of which has so often lost both horses and horned stock, while on their voyage to America. Longer experience, and a more intimate acquaintance with the Durham market, will eventually convince persons who may not be incredulous, of these plain truths.

In reference to my own stock, I imported them solely for my own estate, and never even intended to allow Buckingham to stand; and our melancholy disappointment in Middlesex county, especially in regard of grazing, has alone compelled their sale; but I am about to return to Europe, and if I be spared to come to American again, I intend to bring the purest and most valuable brood stock of the choicest breeds of British cattle, which has ever been sent to this country.

I remain, dear sir,

Yours, very faithfully,

J. A. R.

From the Journal of the American Institute.

THE DANFORTH, OR CAP SPINNER.

This machine was invented in 1828, by Charles Danforth, a native of Massachusetts, and is probably the greatest improvement on the throstle that has been made since the days of Sir Richard Arkwright. Mr. D. resided at the time in Rockland county, N. Y. He had been employed for a number of years as an operator of cotton machinery, and having had experience on the common throstle as well as the Waltham dead spindle, he was aware that the two greatest impediments in these modes of spinning, were the difficulty of making the flyer exactly balanced, and the drag of the bobbin by the strength of the yarn. He thought if any plan could be contrived to wind the yarn on the bobbin without the use of the flyer, it would enable him to run the bobbin very fast. After some reflection it occurred to him that a bobbin running on a fixed spindle, and circumscribed by a smooth stationary polished ring, suspended from or fixed to the top of the spindle, might produce the desired result.

He accordingly proceeded to make the experiment. He first permanently secured a throstle spindle in the frame to prevent its turning; and after cutting the curls from the prongs of the flyer, rivetted to them a smooth ring which passed round the bobbin. He then turned a groove in the lower head of the bobbin, for the driving band to run in, and having put all together, and put the bobbin in motion, he fixed up his thread, and filled a bobbin without any difficulty.

It was perceived in this first attempt, that the tension on the yarn while spinning was very light, and the yarn wound soft on the bobbin; it was therefore thought that the principle would be good for spinning weft, which requires to be slack twisted. He therefore constructed his first machines for weft, and after making various experiments, fixed on the present mode of making and supporting the stationary ring, which is a cap similar in shape to an inverted tumbler, with a polished steel ring on the bottom, having a conical socket in the top, made to fit a small cone on the top of the spindle.

The spindle is of sufficient length to admit the bobbin to traverse its length on it, and is secured to the spindle rail at the bottom. It was found that the bobbin, which is of wood, running at the rate of 7000 revolutions per minute, on a fixed spindle, was apt to get dry, make a loud noise, and cause the bobbin to wear:—to obviate this difficulty, a warve was made, with a tube on the top of sufficient length to pass through the bobbin, on which the bobbin is placed and revolves with it; this warve takes the friction off the bobbin, and as it is made of metal, is durable, and runs without noise.

Mr. D. has patented his invention in this country, and caused patents to be taken in England, and other European states.

This mode of spinning has now been thoroughly tested, both for warp and weft, and is found to be capable of producing full 40 per cent. more yarn, on counts or numbers, from No. 14 to 50, than any other mode heretofore known. It is generally approved of by the spinners who have tried it, and has gone into use, both in this country as well as Europe, more rapidly than any other improvement in spinning has before been known to do.

The principle is such, that instead of making the thread drag the bobbin, the bobbin is made to drag the thread, and the resistance of the atmosphere, together with the slight friction on the lower edge of the ring, produces that retardation necessary for winding the yarn on the bobbin, in consequence of which the tension on all the threads is perfectly uniform, and at the same time delicate, giving a great uniformity and elasticity to the yarn.

This machine requires much less power to drive it than the common throstle.

They are made and sold by Messrs. Godwin, Clark & Co., at their shop in Patterson, N. J., who are the proprietors of the patent, and manufacturers of all kinds of cotton and woollen machinery.

ON POTATOES.

BY T. A. KNIGHT, ESQ.

In a letter which I published last autumn, I stated that I had obtained a produce of potatoes equivalent to 887¼ bushels and 3 lbs., (each bushel weighing 60 lbs.) per statute acre, and then I expressed an intention which I now fulfil, of pointing out the means by which such an extraordinary crop was obtained, and by which, of course, other crops of equal magnitude may be again obtained; and I look forward with confidence to obtaining in the present year a produce equivalent to 1000 bushels per acre of first rate quality.

The first point to which I wish to direct the attention of the cultivator of the potatoe is, *the age of the variety;* for it has long been known, that *every variety cultivated, gradually becomes debilitated, and losses a large portion of its powers of producing; and I believe, that almost every variety now cultivated in this and the adjoining counties, has long since passed the period of its age at which it ought to have resigned its place to a successor.*

No variety should ever be cultivated which uselessly expends itself in the production of seeds, nor even of full grown blossoms, unless it possesses some valuable redeeming qualities.

The distance of the intervals between the rows should be regulated wholly by the length required by the stems in each particular soil and situation. If the utmost length required by the stems be four feet, let the intervals between the rows be four feet also; and if the variety be of dwarfish habits, and its longest stem does not exceed two feet, intervals of two feet will be sufficient.

The rows should be made from north to south, that the mid-day sun may be permitted fully to shine between them, for every particle of living matter found in the tuberous root of the potatoe plant, has been generated in the leaves, (which act only when exposed to the light,) and has descended beneath the soil.

Each set should weigh at least six ounces, and they should never be placed at greater distances from each other, than six inches from centre to centre, and a preference should be given to whole potatoes when such can be obtained. If the growth of the plant be very dwarfish, four inches between the sets from centre to centre will be preferable; and if the form of the potatoe be

long and kidney-shaped, a good deal of advantage will be gained by placing them to stand upon their ends, that end which joined the parent plant placed downwards.

The largest produce will generally be obtained from varieties of rather early habits, and rather low stature, there being in tall plants much time necessarily lost in carrying nutriment, which has been absorbed from the soil, up into the leaves and down again, in the state of living sap, to the tubes.

Varieties which have strong stems and erect form, are to be preferred, because such are least subject to fall upon and shade the foliage of each other.

It is much more advantageous to incorporate the manure with the soil by means of the spade or plough, than to put it in with the sets; for in the latter case, a large majority of the roots during the summer or autumn do not derive advantage from it.

Early planting is, under almost all circumstances, best; and the period, except for some very peculiar varieties, should never be later than the month of April.

Specification for a Patent for an improvement in the Rearing of Silk Worms; Granted to GAMALIEL GAY, *Poughkeepsie, Dutchess county, New York, Oct. 6, 1835.*

To all to whom these presents shall come, I, Gamaliel Gay, of the town of Poughkeepsie, in the county of Dutchess, and state of New York, send greeting.

The hurdles for rearing and feeding silk worms upon, are, or should be, made on a horizontal, four-sided frame, of convenient width and length, and bottomed with cane, or twine, either reticulated, or having interstices between each slat of the cane, or thread of twine; which meshes, or interstices, should be of such dimensions that the silk worm will lie and feed upon them, and the litter of the worms fall through.

Now, be it known, that I, Gamaliel Gay, have invented, and applied to use, a revolving apron, for receiving upon it, and removing, the litter of the silk-worms, which falls through the hurdles, as above mentioned. The specification of which new and useful invention, for receiving and removing the litter of silk worms, as follows:

The revolving apron for a single hurdle, is constructed by placing in a frame, or otherwise at, and immediately under each end of the hurdle, a roller, or cylinder, in length equal to the width of the hurdle; over these cylinders, or rollers, extending from the outside of the periphery of the one, over and around that of the other is affixed an endless apron of cloth, or other flexible substance, equal, at least in width, to the width of the hurdle. This apron being drawn tight around the rollers, and the ends fastened together, is made to revolve around both rollers, by turning them by a crank affixed to the axle of one of them, or by otherwise revolving the rollers. The endless apron being thus constructed, receives the litter from the hurdle as it falls through, which litter, by causing a semi-revolution of the apron, is removed from under the hurdles, and caused to fall in a heap at one and either end of the hurdles, and may be suffered to fall from the apron either upon the floor, or into a vessel placed at, and partly under, the end of the hurdle, and below the outer periphery of the roller.

In case two or more hurdles be placed in tiers, one above the other, the same apron may be used, in which case an endless and separate apron is required for each hurdle; but the best method, the most convenient and least expensive form of apparatus, and which I claim as a constituent part of my invention, is constructed as follows. Let there be rollers, or cylinders, affixed under each end of each hurdle, the same as in case of a single hurdle; to one roller, below the lower hurdle, attach one end of an apron, of the kind and proportionate width first above specified; let this apron pass under the opposite roller, over the roller next immediately above that, under the roller next immediately above the first roller to which the apron is attached, over the next above roller, and under the next opposite one; and so on according to the number of hurdles in the tier, until the apron reaches the last roller to which the apron should be attached, after adding to the length of the apron at least the length of one of the hurdles, which should be rolled upon the last mentioned roller. The apron thus passing under each hurdle, receives all the litter falling from each, which litter is discharged, part at one end, and part at the other end of the hurdles, by turning the first mentioned roller so as to wind over and around it a quantity of the apron equal to the length of the above hurdle, which winding causes an equal quantity of the apron to unwind from the roller to which the other end of the roller is attached; after the litter is thus discharged from the apron, the apron is, in part, to be again wound round the upper roller, as first above mentioned, so as to remain until the litter is again discharged.

What I claim as my improvement, and wish to secure by letters patent, in the rearing of silk worms, is the application of a revolving apron, or aprons, placed under the hurdles upon which the worms are fed, for the purpose of receiving and removing the litter falling from them; and this I claim, whether the same be made exactly in the way described, or in any other, operating substantially on the same principle, and by which a similar effect is produced.

GAMALIEL GAY.

Household Manufacture of Sugar.—A remarkable proof of the facility with which beet-root sugar manufactories may be established is presented at this moment at Wallers, in the department du Nord. Four of the villagers, by advancing 50 francs each, have formed a joint capital of 200 francs, and with this they produced between 40 and 50 lbs. of sugar, of rather inferior quality, a day. They employ curry-combs to rasp the beet-roots, which they put into a napkin-press to extract the juice, and then boil the syrup in common culinary boilers.

Kemp's Submarine Apparatus.—We understand another attempt is about to be made to raise the hull of the *Cameleon*, by Mr. Kemp, who, having obtained a patent for the invention of his buoying principle, has received permission from Government to make an experiment on this ill-fated vessel, and in the event of its proving successful, the wreck, as it may be raised, will become the reward of the enterprise. Mr. Kemp's apparatus consists of a number of empty puncheons, each open at one end, and having a bar of iron across, by which, after being sunk, they are attached to a chain, previously passed round the wreck of the divers, who next employ themselves successively applying to each cask the elastic tube through which they are filled by the air-pump, and the water consequently expelled. The puncheons thus charged with air acquire a perpendicular position, and are so buoyant as to render certain the raising of any weight proportionate to the number of them employed. The operation of filling the puncheons with air will be comparatively easy in this instanen, as from the favorable circumstance of the wreck lying in less than thirteen fathoms of water, little more than two atmospheres will be required, and scarcely any doubts are entertained of the attempt proving successful.

[*Dover Telegruph.*

From the Journal of the American Institute.

We have commenced the publication of the translation of that part of Chaptal's Agricultural Chemistry, which treats of the growing, preparing, and extracting of sugar from the beet. The success which in France has accompanied this comparatively new branch of industry, has induced many to believe that it may be prosecuted quite as advantageously in this country as in France. The author from whom we quote is an authority entitled to the highest respect, as well as on account of his great scientific attainments, as his practical knowledge. Our imports, as appears by the Treasury reports in 1834, equalled in value at the place of importation, five millions five hundred and thirty-seven thousand eight hundred and twenty-nine dollars. We have heard much of the large amounts of native gold obtained from the Southern States. All the native gold received at the United States' Mint, from 1824 to 1835, both inclusive, was only four millions three hundred and seventy-seven thousand dollars. One million one hundred and sixty thousand eight hundred and twenty-nine dollars were paid for foreign sugar in 1834, over and above all the gold, received as before stated at the mint in twelve years. We have in our soil, and in our industry well applied, more wealth than all the mines of South America afford.

The subject of Silk continues to attract attention—and well it may. According to our Treasury reports, twelve millions one hundred and twenty-nine thousand six hundred and forty dollars were imported in 1835 into the United States from France *alone.* This added to the imports of sugar, equals seventeen millions six hundred and sixty-seven thousand four hundred and sixty-nine dollars; an amount which in its bearings on the ballance of trade is equal to so much specie, as our payments for these imports are in articles the products of our labor at their specie value. What an impulse such an amount of additional circulation would give to productive labor? According to the proportion of specie in our banks, and the bills circulated on the strength of that specie, it would amount to

more than fifty millions of dollars.* Those who have examined the subject, are of the opinion that we have it in our power to supply not our own consumption only, but also to export to foreign countries both sugar and silk. If it should be said that some portion of those two articles are exported, and that our consumption is less to that amount, we answer that the expense of transportation will more than overbalance the value exported; and in respect to the article of silk, large quantities imported from other countries than France are entirely left out of the calculation. *More than twenty millions of dollars* are no doubt paid annually for the imported sugar and silk consumed in the United States.

Salt is another article of great consideration, and if the plan of Doctor Cooper, (a drawing of which will be found in a former number,) should answer his expectations, and we do not hesitate in saying that it appears to us reasonable and feasible, then another great item will be added to our national resources. According to Williams' Register of 1834, about twelve millions of bushels of salt are consumed in the United States every year; five millions of bushels of which are of domestic manufacture, and seven millions are imported from foreign countries. These seven millions of bushels cost the consumers, on an average, full 36 cents per bushel, amounting annually to two millions five hundred and twenty-five thousand two hundred dollars.

The imported silk, sugar, and salt, will therefore cost the consumers of this country annually, over twenty-two millions of dollars, which might all be derived from our own labor, and that immense amount remain with us, to circulate and invigorate our productive industry in its varied departments.

It may be suggested, that the production of such a quantity of silk, sugar, and salt, would divert labor to a great extent from other employments, and thus diminish materially our exports of other commodities. This objection will loose its principal force when the subject is examined. Most of the work in the production and manufacture of silk, which is the great leading article, may be done by women, children, infirm persons, and machinery. The reel and the power-loom have already been brought into successful operation.

Much of the labor of making the sugar may be performed by hands of no great account on the farm; and in the manufacture of salt, on Doctor Cooper's plan, comparatively but little manual labor is required; so that the diminution of profitable production would be but trifling; the stimulus, indirectly created by the increased means of the country would, in all probability, more than counterbalance for the labor which would be required to be drawn from other occupations, in which case the entire sum paid for imported silk, sugar, and salt, would be gained by our country.

CAPT. BACK, whose Narrative of his expedition to the Arctic Ocean in quest of Capt. Ross, we noticed at length on Saturday, is about to proceed, we observe by the English papers, on another expedition to that frozen region, in the hope of completing the *reconnoissances* heretofore made.

His ship is the *Terror* bomb-vessel, selected we presume on account of the peculiar strength of such vessels. His first lieutenant is Mr. W. Smyth, who last autumn returned from a journey from Lima to Para down the Amazon, and who was with Capt. Beechy, in the *Blossom*, some years ago, in Behring's Straits. Lieut. *Owen Stanley* and Assistant Surgeon *J. A. Mould* are also to be of the number of his officers.

He will make for *Wager Bay*, where his ship will be laid up, and thence will proceed with boats constructed for the purpose, and which he takes out with him, to complete the survey of the coast from Cape *Turnagain*, where his first expedition terminated, to Victoria Headland, the point where he made the sea on his last expedition. This enterprise will occupy, it is supposed, two years.—[*N. Y. American.*

SPECIFICATION OF A PATENT FOR A MACHINE FOR HULLING COTTON AND OTHER SEEDS. GRANTED TO JOHN AMBLER, JR. CITY OF PHILADELPHIA, NOVEMBER 26TH, 1835.

To all whom it may concern, be it known, that I, John Ambler, Jr. of the city of Philadelphia, in the State of Pennsylvania, have invented an improved machine for hulling and cleaning cotton and other seed, which I denominate the Metallic Cotton Seed Huller, and that the following is a full and exact description thereof.

Upon an iron shaft, revolving horizontally, I place two, or any other convenient number of steel or iron disks, or circular plates of metal, so as to run with perfect truth upon the shafts; disks of eighteen inches in diameter, I have found to answer the purpose perfectly well. By means of a pointed chisel I raise teeth, in the manner of rasp teeth, on each side of these revolving disks, or I groove, or roughen them in any other manner calculated to produce the intended effect. The disks, as they revolve, pass through the flat bottom of a hopper, by which they are surmounted, projecting above the said bottom about one third of their diameter. Steel plates, cut like the disks, are placed on each side of them; the upper edges of these plates are on a level with the bottom of the hopper, and they extend down to the lower part of the revolving disks, covering about one-fourth part of the face thereof, this having been found sufficient to effect the hulling, perfectly.—These latteral plates are attached to adjustable sliding bars, or fixed in any other way which will admit of their distance from the disks being regulated according to the kind of seed to be hulled. It has been found best not to increase the opening between the plates and disks at the upper edge, but to preserve their parallelism throughout, so that but one seed can find its way between them at a time.

The seeds and hulls fall upon a sloping skreen, or riddle, which is made to shake, and to carry the portion which does not pass through the riddle to a revolving picker, placed at one end of the frame; this picker, and the hollow segment within which it revolves, are set with teeth in the manner of a picker for wool, and serve to separate the matted portion of the hulls, cotton, and seed, so that the lighter portion may be driven off by a revolving fan placed at the lower part of the machine for the purpose of cleaning the hulled seed.

The riddles, screens, shakers, fan, &c. which I employ, do not differ from such as are in common use for cleaning grain and other seed, and do not, therefore, require to be particularly described, as they make no part of my invention, and may be variously modified, or used separately from the hulling apparatus.

What I claim as my invention, and wish to secure by letters patent, is the hulling of cotton, and other seed, by means of revolving disks, or plates of steel, or other metal, made and operating substantially in the manner herein before set forth.

JOHN AMBLER, JR.

Journal of the Franklin Institute.

SPECIMEN OF A PATENT FOR AN APPARATUS, AND MODE OF USING THE SAME, FOR RAISING VESSELS FOR THE PURPOSE OF REPAIR. GRANTED TO RUFUS PORTER, BELLERICA, MIDDLESEX COUNTY, MASSACHUSETTS, NOV. 14th, 1835.

Four square timbers eighty feet in length, are placed parallel to each other, and so arranged that the space between each pair is ten feet, and the whole breadth across the four is forty feet. Across these are placed, at equal distances, seventeen other timbers, forty feet long, being firmly secured to the first four by tree-nails, and over these last is placed a strong plank floor; the whole constituting a stage, or platform, eighty feet in length, and forty in breadth. This platform rests on four square trunks, each being thirty feet long, ten feet wide and ten feet deep. These trunks are constructed of framed timbers and plank, and are closed and made water tight on all sides, except an open space of ten feet in length, by four in breadth, in the centre of the bottom of each, and are placed under the four corners of the platform, between the long timbers above mentioned, so that only the cross timbers rest on the tops of the trunks. The platform is further supported by braces extending diagonally from the sides to the trunks, and also connected by iron rods crossing from one to the other. The platform and trunks, which thus connected, I call the elevator, being put into the water, or rather having been constructed afloat, a sufficient quantity of stone is placed on the iron rods to cause the whole to sink when filled with water.

Two scows, each eighty feet long, and eight feet wide, are kept in attendance, one of which floats over each side of the elevator; and ropes being attached to the four corners of the elevator, or to arms projecting therefrom, are also made fast to the bow and stern of each scow, thus preventing the elevator from sinking below a certain depth, say twelve feet below the surface of the water. Each scow contains, besides a small steam engine, of one horse power, two hollow cylinders similar to the cylindrical boilers of high pressure engines, each cylinder being thirty feet long, and thirty inches in diameter. From each of the four cylinders a piece of leather hose extends to one of the four trunks, being firmly attached to each. These cylinders being charged, by the power of the steam engines, with fifteen atmospheres of compressed air, the vessel to be raised is floated between the scows, or if the vessel lays at anchor, the scows may be propelled by the steam power, to a station on each side of the vessel, dragging the elevator with them which is then raised by the ropes until the middle of the floor comes in contact with the keel of the vessel, and is secured in that position by several ropes or chains,

* By the Report of the Bank Commissioners of the State of New-York, January 23, 1835, there were in all the banks of the State $6,224,646 of specie, and at the same time $21,127,927 of the notes of the same banks in circulation.

which being attached to the sides of the elevator, are made fast to the timber heads of the vessel. Moreover, several chucks, or blocks, previously prepared and connected with the elevator, are placed under the bottom of the vessel to support the same in its position when raised. Then, by means of valves, the compressed air in the cylinders is permitted to escape through the hose into the interior of the trunks, which immediately give them a buoyancy of about seven hundred thousand pounds. But if the vessel thus raised be of such a size as not to require so much power of buoyancy, the compressed air may be instantly shut off, whenever the floor of the elevator shall have risen fairly above the surface of the water.

While one vessel is being repaired, the cylinders are again charged; and when the repairs of one are completed, other valves are opened, which permit the air to escape from the trunks, while the vessel settles readily, but gently, into the water, and the elevator is ready to receive another; thus avoiding the ordinary delay attendant on raising vessels by the usual method.

I claim the construction and mode of using the elevator generally.

RUFUS PORTER.

Remarks by the Editor.—We have been induced to publish the for going specification entire, because it describes the thing patented with a directness and clearness which may serve as an example to others. There is nothing extraneous about it, and we could scarcely, therefore, have done any thing like justice to it had we epitomized it in the ordinary monthly list. There is nothing new in the principle of raising vessels by means of air forced into hollow trunks, but the whole arrangement set forth gives a special and distinct and special character to the plan before us, by which it can undoubtedly be sustained.—*Journal of the Franklin Institute.*

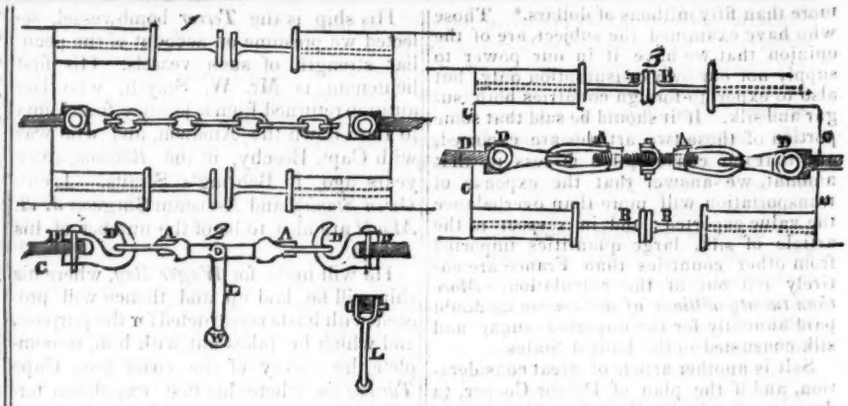
From the London Repertory of Patent Inventions.

SPECIFICATION OF THE PATENT GRANTED TO HENRY BOOTH, OF LIVERPOOL, FOR CERTAIN IMPROVEMENTS IN LOCOMOTIVE ENGINES AND RAILWAY CARRIAGES. SEALED JANUARY 23, 1836.

My improvement applicable to railway carriages I declare to be a new mode of connecting the carriages together, by which is effected an increased steadiness and smoothness of motion at high velocities, and which consists in an improved connecting apparatus, by the action of which the buffers of the separate carriages of a train held in contact with each other, so as to prevent that independent lateral and serpentine motion, which railway carriages moving at high velocities assume when they are attached together in the usual way by a simple draw chain.

Description of the Drawing.—Fig. 1, shows the mode in which railway carriages have usually been attached to each other by a simple chain, the buffers of one carriage not coming in contact with those of another, but each carriage being allowed, when moving onwards, a lateral oscillating motion.

Figs. 2 and 3, show the improved mode of connection for which I claim my patent. A, is the connecting chain attached to the draw bar of each carriage, and consists of a double working screw (working within two long links or shackles,) the sockets of which are spirally threaded to receive the



screw bolts which are fastened together by a pin and cotter—so that by turning the arm or lever, z, of the said screws, the connecting apparatus is lengthened or shortened at pleasure, to the extent of the long links or shackles above alluded to, in which they work. This screw chain being placed on the hooks, or turned up ends of the carriage draw bars (D), the buffers (B) of each adjoining carriage being first brought close or nearly close together, the lever (Z) is turned round a few times till the draw bars (D) are drawn an inch or two beyond their shoulders, on the face of the carriage frame (C), stretching the draw springs (to which the draw bars are attached), to the extent of a fourth or fifth part of their whole elasticity; and by that degree of force attaching the buffers of the adjoining carriages together, and giving by this means, to a train of carriages, a combined steadiness and smoothness of motion at rapid speeds, which they have not, when the buffers of each carriage are separate from those of the adjoining carriage. W, is a weight to keep the lever in a vertical position and prevent the unscrewing of the chain when in action.

Now I do not claim as new the separate parts before described of the buffers, screw chain, or draw-bars, attached to a draw spring, but I claim the combination and joint action of those parts as described, and the consequent close, but elastic attachment of the carriages to each other, which constitutes my improvement applicable to railway carriages.

And my improvement applicable to the locomotive engines which draw the railway carriages, I declare to be a new mode of checking the speed of the engine, or stopping it altogether, which is effected by introducing a throttle valve, slide, or damper, into the exhausting steam pipe of the engine, commonly called the blast pipe, which is usually placed in the chimney, in front of the engine; and which throttle valve may be most conveniently introduced where the two exhausting pipes are united into one, below the place where the pipe is contracted in area for the purpose of producing a blast to the furnace. From the throttle valve must proceed a rod or long handle extending through the chimney to the back part of the boiler, so as to lie within convenient reach of the engine-man, who by moving the said handle, can close the slide or throttle valve, either partially or altogether as may be required. And the throttle valve need not be altogether steam tight, but should be made to work freely in its place. The engine-man when he wishes to stop or slacken the speed of his engine, closes or contracts his throttle valve without shutting off the steam in its passage from the boiler to the engine. The pistons, by that means, are speedily, but not suddenly or violently checked, and the driving wheels of the engine no longer revolving, or revolving very slowly, the engine is soon brought to a stand. Now I do not claim as new, any particular kind of throttle valve, which may be left to the judgment of the engineer, provided it be so constructed that when open the steam way be not contracted, but may allow the steam to escape freely as if no valve or damper were introduced. But I claim the introduction of a throttle valve, or damper, into the exhausting steam-pipe of a locomotive engine, by closing or contracting which the engine-man can check or stop his engine at pleasure. In witness whereof, &c.

Enrolled March 21, 1836.

SPECIFICATION OF A PATENT FOR A DOFFER FOR WOOL CARDING MACHINES. GRANTED TO STEPHEN R. PARKHURST, PROVIDENCE, RHODE ISLAND, OCTOBER 10th 1835.

To all persons to whom these presents shall come, be it known, that I, Stephen R. Parkhurst, of Providence, in the county of Providence, and State of Rhode Island, and Providence Plantations, have invented a new and useful doffer, with corresponding rolls, for the wool card, called a finisher.—Instead of a continuous cylinder, this doffer is composed of a set of wheels, or pulleys, of equal diameter with the common doffer, covered with a card in the same way, of three or four inches thickness at the rims, to revolve like the common doffer, placed upon their shaft, an inch, or an inch and a half, apart, and a small angle and parallel with each other, and making such an angle with the shaft as that the spaces between may be fully compensated in their revolution, and the whole surface of the main cylinder be passed over by them; and their rims, or outer surfaces, must be parallel to to their shaft, so as to conform to the surface of the main cylinder. Next, there is a set of pulleys, which I call division rollers; these may be about four inches in diameter, for a common doffer, of the same thickness with the spaces between the different rims, or pulleys, of the doffer, placed upon their shaft at the same angle, turned by a belt, or gear placed before the doffer, with their shaft a little lower than the shaft of the doffer, and so placed that their outer edges will be a little within the rims of the doffer, for the

purpose of keeping the wool on the different parts, or wheels, of the doffer, entirely separate, as it is taken off by the top rolls, hereinafter described. The next are a set of pulleys, or wheels, or rims, which I call the top rolls; they are equal in number to the different rims of the doffer, four or five inches in diameter; they may be a little less in thickness than the width of the different rims of the doffer, so that the division rolls may revolve freely between them, placed so as to revolve in contact with their correspondent rims of the doffer, for the purpose of taking the wool from it, and so placed as that they will so bear upon the shaft of the division rolls as to be turned by it. A comb, if necessary, may be attached to this doffer, to clear the wool from it. The wool taken from the doffer by these top rolls, kept in separate laminæ, or flakes, by the division rolls, drawn over the shaft of the division rolls, may be passed through a tube, or a belt, and then run on a spool, or spools; or by a flyer properly rplaced, it may at once be twisted into a thread. By regulating the feed of the card, and the speed of the division rolls, the size of the roping, and of thread, i. e. the fineness of them, may be regulated, or adjusted, to suit the work required.

I claim as my invention, and not before known, the doffer before described, together with the top rolls, and division rolls, to correspond with it.

STEPHEN R. PARKHURST.

We were once in want of a similar capillary gas tube to that mentioned in the following extract from the London Mechanic's Mag. We had not the means of constructing it but give the plan for the use of our readers.

Two concentric bars slightly conical are to be made to fit each other perfectly (somewhat after the manner described in the 2nd method below). By means of a screw or any other convenient apparatus, the exterior cylinder is to be raised from the interior one, and immediately an opening varying at pleasure from 0 up to the largest aperture required. This opening, however, is continuous, and a flame from such a tube would present a most beautiful appearance.

The ease with which such a tube could be made and the advantage of varying the size of the aperture, present improvements of some benefit.

It may be remarked that either tube may remain fixed while the other moves.

It would also be easy to construct a gas valve on the same principle.

METHOD OF MAKING CAPILLARY TUBES IN METAL.

For gas-burners, for the safe combustion of mixtures of oxygen and hydrogen, and for other purposes, it is often desirable to divide the end of the discharge-pipe into fine capillary tubes, of the depth of half an inch or more. It is difficult and expensive to bore such apertures in a piece of solid metal, and it is hardly possible to be executed at all, if the apertures are required to be of very small diameter.

Two new methods of producing such capillary tubes have been communicated to the Society of Arts—one by Mr. J. Roberts, of Queen street, Cheapside, and the other by Mr. Henry Wilkinson, of Pall Mall—which are thus described in the last part of the Society's Transaction:—

Mr. Robert's Method.

"Mr. Roberts very ingeniously and expeditiously subdivides the end of a metal pipe into small tubes of any required depth, by means of pinion-wire. Pinion wire is made by taking a cylindrical wire of soft steel, and passing it through a draw plate of such a figure as to form on its surface deep grooves in the direction of radii to the axis of the wire; the ribs which separate these grooves from one another may be considered as leaves or teeth, and of such wire when cut into proper lengths, are made the pinions used by watchmakers.—Hence arises the name by which this wire is commonly known. If now a piece of this wire be driven into the end of a brass pipe of such a size as to make a close fit with it, it is evident that that part of the pipe has thus been subdivided into as many smaller tubes as there are grooves in the wire. By using a draw plate fitted to make smaller and shallower and more numerous grooves than are required in common pinion wire, it is manifest that wires or cores may be produced, which, when driven into metal pipes, as already described, will subdivide them into capillary tubes of almost any degree of tenuity."

Mr. Wilkinson's Method.

"In the course of some experiments on artificial light, which I was engaged in about twelve months since, I was desirous of obtaining a great number of extremely minute apertures for a a gas burner; and, finding it impossible, in the ordinary way, to obtain them, a new method occurred to me, which immediately produced the desired effect. I showed it at the time to several eminent, scientific men, who were unable to conceive how these apertures were formed; and, as I made no secret of the method, they were equally pleased at the simplicity of the operation; and the specimen herewith sent has been exhibiting at the Gallery of Practical Science for several months. I did not attach much importance to it myself; but, as I do not find that it is at all known, and now think it might be useful in a variety of ways, I have sent it for you to lay before the Society; and should they be of the same opinion, I shall feel much pleasure in communicating the mode of operation, by which any number of apertures, hardly visible to the naked eye, and of any length (*even a foot if required,*) may be made in any metal in *ten minutes!*

"The process consists merely in turning one cylinder to fit another very accurately, and then, by milling the outside of the inner cylinder with a straight milling tool of the required degree of fineness, and afterwards sliding the milled cylinder within the other, apertures are produced perfectly distinct, and of course of the same length as the milled cylinder. A similar effect may be produced on flat surfaces, if required."

IMPROVED PORTABLE FIRE-LADDERS.

Sir,—Mr. Merryweather having just completed a third set of his improved portable fire-ladders for the Fire-Association of the South-Western District of St. Pancras, the opportunity was taken of making some experiments, particularly with a view to ascertain the effect of my invention of an upper carriage, described at p. 184 of your 22d volume. In the first instance, a simple roller the width of the ladder was attached on the under side, and the relief which was thus afforded in raising the ladders was most surprising.

A pair of small wheels were subsequently applied, when all the irregularities of the brick-work, ridges, window-sills, &c. were surmounted with the greatest ease, and with a rapidity altogether unprecedented.

Thus equipped, three young men joined and raised *seven lengths of these ladders*, reaching upwards of 40 feet, *in half a minute!*

I was previously told that this feat had been repeatedly done on the day previous, but must confess I could not give credit to the statement; my scepticism was, however, completely removed on seeing the experiment performed.

There is one great advantage in employing wheels *permanently fixed* to the first joint of all such ladders as are *stationed in sets*, not yet adverted to, viz: that when the six ladders are strapped together, and standing upright against a wall, &c., with the wheels downwards, they serve to carry the ladders; and thus equipped, one man (supposing it possible a case may occur where no more assistance is at hand) can run off with them to the fire without the least difficulty.

Another addition is about being made to these ladders, for the purpose of assisting such persons as, from fear or infirmity, are unable to avail themselves of the ladders as a mode of escape. A small metal pulley is to be fastened to the wheel-axle at the top of the ladder, a rope passed through which, enables a cradle to be raised to any window of a dwelling, for the rescue of invalids, females, children, &c.

It is with the most unfeigned pleasure, that I notice the attention which this subject has recently received; fire-escapes and improved fire-ladders have been stationed in numerous convenient, situations in many parts of the metropolis, and great exertions are every where making to lessen the number of those calamities, which, in spite of all human efforts, will sometimes occur.

I remain, Sir, yours respectfully,
WM. BADDELEY.

London, April 23, 1836.

[*London Mechanics' Magazine.*]

Expensive Tables.—Tables of tiger and panther-wood (different varieties of the citrus) appear to have been first brought into fashion by Cicero, who is said to have given for a single one a million sesterces, *i. e.* 8072*l.* One belonged to Gallus Asinius, which was valued at 8879*l.* Two, which had formerly belonged to King Juba, were actually sold, one for 9700*l.*, and the other for somewhat less. Another, which had been for some generations in the family of the Cethegi, was sold for 11,300*l.* and in the time of Pliny was accidentally destroyed by fire. The largest ever known belonged to Ptolemy, king of Mauritania; it was four feet and a half in diameter, and four inches thick, being formed of two semicircular planks, so skillfully joined that the place of juncture was not discernible.—These tables were generally set in a broad border of ivory.—*Mr. Aitken—Trans. So. of Arts.*

From the Railroad Journal.

CLINTON.—NO. V.

One hundred and six miles, on an air line, from the City Hall to the heart of the Anthracite Coal Valley of Luzerne County, Pennsylvania! This is the text: this is the text I preach from. Sooner or later it must have its effect in your great city. Fifty miles nearer to New-York than Albany. Not further from the Park on a straight line, than Washington Square in Philadelphia is, on the route travelled, from the coal mines of Schuykill, is it not apparent, to a moments reflection, that those Luzerne coal deposites are so near to New-York, and so easily accessible, as to render them objects of first rate importance to the consideration of all who are concerned in the business and prosperity of the city? Cannot New York, by these mines, enter into fair competition with Philadelphia, in the coal trade? And if she can, is not that already great and rapidly growing business, worthy of her earnest, prompt and early attention?

Before I close, my purpose is to give a brief description of the Luzerne Anthracite Coal Valley. One or two remarks, however, press on my mind, and I may as well put them down here.

First. In a late number of the Journal it is mentioned that the Darlington and Stockton Railroad, in England was expected, when made to transport 50,000 tons of coal. Lo! beyond all expectation, or even hope, during the past year there have been transported on it near 500,000 tons: So it is: So, too, on all the canals and Railways in England, leading to coal mines, the business in coal has very greatly surpassed the most excited expectation: So, too, would it be here, were the proposed railroad fairly in operation.

I wish, Mr. Editor, you would add to the interest and value of your very interesting Journal, monthly, or once in three months, prices current of railroad and canal stocks, in our own country and in Great Britain.

Second. In a note to my former number you mentioned the probable price, per ton, at which coal could be taken from Pittston to New York. In my opinion that price was much to high, for, you must consider, that the return cars would all go back loaded. I pray you to remember, that, from Philadelphia to Mauch Chunk, and from Philadelphia to Schuylkill, the boats have to return nearly empty, because they go into a barren, uninhabited region, without trade or population, except such as is derived from, and dependent on, the coal trade. Hence the descending freight, or coal, must necessarily bear the burden of the returning cars or boats nearly freightless. Not so will it be with cars on the New York and Pittston Railroad; for at Pittston the Susquehannah River is struck, the Wyoming Valley, and Lackawana Valley, rich, populous, productive,and rapidly advancing. will be reached. From Pittston the State canal is already completed down the river to Columbia, and will be soon finished up the river to the State line. A vast extent of country, already rife with business and population, now supplied, imperfectly by circuitous routes, will require and receive by the direct line from New York, fish, plaster, salt, sugar, molasses, oil, coffee, hides, grindstones, domestic and foreign goods and merchandize of all sorts, which will all bear handsome tolls, and enable the stockholders and carriers to place the toll and carriage on coal so low, that this necessary and leading article may be transported to your city, at a moderate cost.

Suppose the distance of the Railroad from Pittston to New York to be 130 miles, and this is making a large allowance for deviations from the straight line, cars, going down with coal, at the rate of 11 miles an hour, would, at this season of the year, leave at sun-rise, and arrive at New York at half past 4 P. M. There would be then time to load with merchandize, and with their lighter freight return to Pittston before morning. Shorten the road, as it is believed may easily be done, from its present circuitous location, 10 miles, and with a speed entirely consistent with safety, the trip out and back may be made in a day. Can any one of your readers tell us how many days a boat on the Schuylkill Canal, or Lehi and Morris Canal, is usually engaged in making a trip for coal? I am fully persuaded that, in a very few years,the coal trade from the Luzerne mines to New York, will be one of the most extensive and lucrative branches of business carried on by your enterprising city. And this consideration should be borne in mind by capitalists disposed to make investments in lands in Luzerne; namely, that the balance of trade will naturally be large in favor of the Anthracite Valleys; and that every district which has the balance of trade in its favor, consequently grows rich, and therefore that all property therein goes on steadily appreciating.

I have stated the suppositions that the Railroad might be 130 miles: if so, and the toll be fixed at 1 cent a ton per mile, $1,30
Transportation 2 cents a ton per mile, 2,60

$3,90

Then the actual cost of taking coal to New York from Pittston would be three dollars and ninety cents. Add 40 cents for raising and 50 cents for its value per ton in the mine and you have $4,80. On canals the cost of transportation, independent of tolls should not exceed 3 quarters of a cent per ton per mile, and does any rational man doubt, but, with the improvements every day making in Railroads, transportation by that mode will ultimately be reduced to nearly the minimum of cost on Canals?

I did intend in this number, to give a description of the Luzerne Anthracite Coal Valley, but it is impossible to do so consistently with the brevity prescribed to myself I therefore defer such description to my next.

SPECIFICATION OF THE PATENT GRANTED TO JOHN BIRD, OF BIRMINGHAM, FOR AN IMPROVED METHOD OF MAKING AND COMPOUNDING PRINTER'S INK, PAINTS, AND OTHER PIGMENTS. SEALED OCTOBER 15, 1835.

My improved method of making and compounding printers' ink, paints, and other pigments is as follows: I take a certain portion of mineral earth or matter found in great abundance on my estate at Dinas Mowddwy in Merionethshire, in North Wales, and other places; which mineral earth or matter, I first wash clean from every portion of slate or other debris, and which after such washing becomes a very fine black impalpable powder if dried, or a very fine paste if wet. This black deposit is a compound prepared by nature consisting of the following substances, and in the following proportions or some like proportions viz., silica 46, alumina 42, and coaly matter 12.

In order to make printers' ink, I take as large a portion of this prepared compound as I deem necessary, and mix and grind it up with boiled oil, or prepared oil, usually used in the making of inks, which when so prepared, is my improved method of making and compounding printers' ink. To make ink used in copper-plate printing, I adopt the method now in use, substituting the above-mentioned compound, in lieu of Franckfort black, or what is usually designated by that name. I then, in order to make and compound paints and other pigments, take in those proportions I find necessary of the above matter, and mix and compound it with oils, spirits, or any other substance requisite for making paints and other pigments, under which last descrip- I include the making of blacking.

In the manufacture of ink, blacking paints or other pigments, I do not confine myself to any particular quantities of the ingredients above-mentioned, but take any quantities thereof, which are found most desirable.

I claim no exclusive privilege for the use of any other matter in making and compounding inks, paints or other pigments, except the use of the compound above described, and for the use of the said compound, and for mixing it in any way, or in any proportion convenient for the making inks, paints, and other pigments, I do hereby claim the exclusive privilege. In witness whereof, &c.

Enrolled April 15, 1836.

CURE FOR THE GARGET IN COWS.

Cows after ceasing to be milked are very apt to suffer from an induration of the glands of the udder, and it not unfrequently happens that the same effect is produced by negligent milking. If a cow be not stripped at each time, she will ultimetely go dry, and oftentimes the most serious consequences result to the animal from the effects of this neglect of the dairy-maid. Whenever the udder becomes inflamed and hardened from either of these causes, let a liniment be composed of camphor and blue ointment, and the udder be well embrocated therewith, and should a feverish condition of the animal ensue a dose of salts say 3 or 4 ounces at a time should be exhibited for 3 or 4 days in succession.—*Farm. & Gard.*

SODUS CANAL.—Books will be opened at Adam's Hotel, in Geneva, on the sixth day of August next, to receive subscriptions for the stock of the Sodus Canal.—Amount of stock, eight hundred thousand dollars. Shares, fifty dollars each.

From the Farmer and Gardener.

REARING OF HOGS.

There is, perhaps, no part of the business of the farmer so badly attended to in this country as that of raising swine. It is quite a common thing for those, who are even largely engaged in agriculture, not to raise as many hogs as serve the purposes of their home consumption. The reasons which led to this discreditable result may be traced in part to the following causes, viz:—1, neglect in the nurturing and feeding the animals,—and 2, indifference to the selection of a good breed. That every farmer should not only be able to raise hogs enough for his own bacon, but that he should have some to sell, are facts so susceptible of proof that they do not require argument to illustrate their tangibility, nor will any be so adventurous as to hazard their denial.

By the term "a good breed," we do not mean to say that *size* should preponderate in the choice; on the contrary, *that* should form but a secondary consideration, for there are other prerequisites which enter into the composition of "a good breed" of hogs, that are of infinitely more moment. *Size*, to be sure, where a farmer or planter has a large number of hands, is an object, but then to render that *object* desirable, it must be attainable at a small cost. Early maturity and disposition to fatten are, therefore, traits of character in "a good breed" of hogs, which should never be overlooked. But it will appear obvious to any intelligent mind, that however much a hog may be predisposed to early maturity, or to take on fat, that that quality can alone be rendered available where the animal is well treated; for even a race of giants would be reduced to the size of dwarfs, if badly and scantily fed, as it is contrary to the principles of animal economy, that *magnitude* and *volume* can be given to the carcass of either man or beast, who does not daily receive a generous allowance of nutritive food. Half-feed a boy from infancy to manhood and what is the consequence? A meagre, ill-looking, undersized being is presented to our view, at the period of his majority—and, we would ask, can we expect a better fate to await the hog who shares a similar treatment? If we do, we most assuredly have mistaken the principles which obtain in the development of the animal functions, and we will assuredly reap a rich harvest of chagrin and disappointment,—nature,—whether presented in the requirements of humanity, or those of the more humble and pretensionless petition of the family of swine—whether the animal body belongs to the one or the other—must have its necessities supplied—its wants and cravings of its appetites must be gratified. As well may we expect a luxuriant crop from a sterile field, without proper manuring, as to expect that hogs, however good the breed, will prove profitable, if not well and judiciously kept and fed. He, therefore, who would have a plentiful supply of hog-meat for his household, or for sale, must *begin right*—he must be liberal, just and enlightened; for true economy in the *raising* of them, as well as in that of any other stock, consists in consulting nature. To enable them to grow, a proper quantity of nutritive food must be provided. If the grower of hogs expects to have his meat-house filled without it, he will be egregiously mistaken.—Hogs may be kept in a good thriving condition upon a well set clover field through spring and summer, and so may they also, during fruitful mast years, in the woods; but in either case the proprietor will find his interest promoted by providing full portions of roots, as *potatoes*, *ruta-baga*, *mangel-wurtzel*, and also pumpkins. The raising of these will require labor and expense; but the difference in the weight, and value of his animals, will more than repay him for both. If his hogs are destined to run in a clover field, it should be in one where there is a copious supply of water, and the animals should be ringed to prevent their rooting. We hold it, however, best that they should be penned and only occasionally permitted to range in the field, and that the roots which they may receive should be cooked either by steaming or boiling.

It has been affirmed that hogs do not thrive well if confined in a pen and soiled with clover; for ourself we are not a believer in this faith unless where from neglect an abuse of this kind of feeding takes place. When the hog roams at large he has a chance of being his own physician—in the fields or woods on which he may graze, he finds numerous herbs and other substances which serve as medicaments to correct the enervating effects of his exclusive vegetable diet; and it is, therefore, but reasonable when he is cut off from these, that he should be furnished with substitutes to keep down the baleful effects of the crudities of those substances which he receives into his stomach. All vegetable bodies which are edible are charged with more or less of acidities, the which, if permitted to remain uncorrected, will prey upon and vitiate the digestive organs. At this point then, nature must be assisted, and it may easily be done. Rotten wood, charcoal, or chalk, if placed in a convenient part of the pen will be readily partaken of by its tenants, and will preserve them in health. In addition to these it will be found serviceable to mix moderate portions of flower of sulphur and copperas occasionally with their messes.

If the hogs be confined in a pen altogether they cannot be kept with too much regard to their comfort and cleanliness, for although when permitted to range they luxuriate in mud and filth, under the former circumstances, their bedding should be frequently changed and their bodies in warm weather receive the benefit of periodical ablutions. With these precautions, and proper feed, to be given at regular intervals, there is no question but they will not only thrive well, but prove a profitable stock to any farmer who may try the experiment of thus raising them.

We copy the following article first published in the Baltimore American, and republished, with additions in the Farmer and Gardener. We trust that the fears so generally expressed will not be realized.

THE CROPS.

The unfavorable reports which have been made in the course of the present summer in reference to the grain crops have created apprehensions that the yield of the harvests would be so materially lessened as to cause considerable advance in the prices of bread stuffs during the ensuing year. The season has been marked by complaints,—much more numerous and decided than those which we are accustomed annually to hear,—of the injury sustained by the wheat during the severity of the winter, and more recently by the ravages of the Hessian fly, and these complaints have not been confined to any particular quarter, but have issued from almost every grain growing section of the Middle States. As we have already intimated, reports of this character have for years past regularly attended the developement of the growing crop, and in most cases the fears of those who have uttered them have, happily, not been realized. The frequency, universality and loudness of the complaints of the present season, however, evidently indicated that they were better founded than usual, and in order to ascertain as clearly as possible their true character, an enterprising and intelligent citizen took the trouble of addressing a copy of the annexed Circular to each of the Postmasters in the various counties and towns of the grain growing State;

"BALTIMORE, JUNE 14th, 1836.

SIR: Considering it a matter of much importance that correct information on the subject of the Grain Crops throughout the Country should be collected, and with a view to the dissemination of such information in case the fears of those who apprehended an unproductive yield in the approaching crop should be likely to be realized, I take the liberty of requesting that you will be pleased to inform me of the probable result in your immediate neighborhood by filling up the blanks in the annexed half sheet, with such one of the following words, viz: *good*, *average*, *indifferent*, *bad*, *very bad*, as may be applicable to the case, adding any other matter that you may deem important, and returning it to me, under your frank, you will much oblige, &c."

The object of the Circular was to obtain correct information, and in seeking for it over so wide and extended a field, no better, more intelligent nor more disinterested sources could be referred to than the Postmasters. In very many instances prompt replies were returned, the whole of which have been kindly placed in our hands for the purpose of being given to the public. We have therefore proceeded to classify them according to the States to which they belong, and submit them to the reader without further remark:

NEW YORK.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Schenectady,	average	average	average	promising
Onondaga,	¼ an average	none	good	uncertain
Delaware,	not a wheat co.	good	good	indifferent
Broome,	indifferent	indifferent	good	indifferent
Greene,	average	average	average	indifferent
Seneca,	good	not good	promising	uncertain
Yates,	⅔ of a crop	average	good	promising
Orleans,	indifferent	short crop	good	uncertain
Lewis,	indifferent	short	good	bad
Otsego,	average	half crop	good	half crop
Steuben,	average	average	good	promising
Westchester,	good	good	good	bad
Alleghany,	average	average	good	uncertain
Tioga,	not half a crop	average	good	indifferent
Cayuga,	indifferent	average	good	good
Erie,	indifferent	none sown	average	bad
Columbia,	indifferent	average	very good	bad
Cattaraugus,	average	average	very good	not good
Essex,	not a wheat co.	promising	good	uncertain
Suffolk,	bad	average	very good	indifferent
Ulster,	bad	average	good	indifferent
Maysville,	average	not much grown	good	very bad

NEW JERSEY.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Gloucester,	indifferent	very bad	good	indifferent
Bergen,	good	average	good	indifferent
Burlington,	indifferent	very bad	good	average

PENNSYLVANIA.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Pike,	indifferent	average	good	bad
Cumberland,	very bad	average	promising	promising
Westmoreland,	average	average	good	uncertain
Berks,	less than ½ a crop	tolerable	promising	promising
Franklin,	very bad	average	very good	uncertain
Lycoming,	¼ of an average	not good	promising	uncertain
Lancaster,	entirely destroyed by fly	half a crop	good	promising
Tioga,	average	average	good	promising
Wayne,	not a wheat co.	bad	good	bad
Centre,	average	——	——	——
Huntingdon,	fair	——	——	——
Mifflin,	½ short	——	——	——
Northumberland,	indifferent	——	——	——

DELAWARE.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Kent,	bad	indifferent	very good	promising
Sussex,	none	fair	good	half a crop

MARYLAND.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Washington,	very bad	very bad	promising	promising
Dorchester,	very bad	bad	good	bad
Frederick,	not more than ¼ of a crop	half average	good	promising
Cecil,	less than half	average	average	bad
Worcester,	very bad	indifferent	good	not good
St. Mary's,	fair	average	promising	uncertain
Carolin,e	not half the seed	very light	very good	promising
Somerset,	very bad	average	very good	good

VIRGINIA.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Dinwiddie,	very bad	fair	very good	indifferent
Chesterfield,	about the seed	small crop	best in the world	uncertain
Powhattan,	very bad	none	very good	uncertain
Nansemond,	indifferent	little sown	very good	average

OHIO.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Fairfield,	half a crop	little sown	abundant	promising
Wayne,	good	little sown	good	uncertain
Ross,	indifferent	average	good	promising
Crawford,	not a wheat co.	little sown	good	uncertain
Columbiano,	very good	good	very good	middling
Clinton,	average	good	very good	promising
Holmes,	⅔ of a crop	little sown	promising	uncertain
Seneca,	very good	very good	very good	bad

ILLINOIS.

Counties.	*Wheat.*	*Rye.*	*Oats.*	*Corn.*
Salem,	indifferent	average	good	generally late

In various instances the Postmasters have accompanied their returns with remarks going more fully to explain the condition of the crops. Portions of these remarks are subjoined, in order that the reader may have all the light on the subject which they furnish.

NEW YORK.

Angelica, Alleghany Co.

Unless something more happens, there will be a tolerably fair crop in general.

Bradford, (N. Y.) and vicinity.

Westchester Co.

Wheat, rye, and oats look very well, and a prospect of good crops.

Bath, Steuben Co.

In the counties east of us, large fields of wheat have been ploughed up and corn planted. The grain was smothered by the deep and long continued snow of last winter.

Martinsburg.

Wheat is winter-killed—there will be probably over half a crop.

Albion, Orleans Co.

The wheat crop in this county not considered more than two-thirds of an average. Much injured by deep snow in the winter.

Penn Yan.

This is probably one of the best districts for wheat in the Union, and I think the crops would be abundant, but more from the quantity of ground occupied. Wheat is, in this section, the main crop. [The yield has been put down at about two-thirds of a good crop.]

Auburn.

The wheat crop in this section of the State east of a line drawn north and south through Cayuga Lake, is not likely to produce more than two-thirds of the usual quantity. West of that line the wheat crop is much better, and will probably amount to an average.

Riverhead.

Wheat is very much winter-killed—probably there will not be over two thirds of an average crop.

Binghampton, Broome Co.

Wheat and rye very much winter-killed. The crops will hardly be middling.

Syracuse, Onondaga Co.

Wheat will produce less than one fourth of last year's crop—hardly enough for bread and seed. Last year this county produced probably 500,000 bushels. This is the first year since 1828, that our wheat crop has failed. It being known early in the season, that the wheat was killed, our farmers turned their attention more vigorously towards coarse grains, of which, it is pretty safe to anticipate a large yield. Wheat, however, is our staple, but in all the counties east of Cayuga Lake, the harvest must be exceedingly small.

Essex Co.

Not much wheat raised in this county—what there is, looks well.

PENNSYLVANIA.

Wellsborough, Tioga Co.

The wheat and rye have been injured by

the snow, but the weather has since been favorable for the winter grain, and we have a prospect of a fair average crop.

Williamsport, Lycoming Co.

I have never seen so general a failure in the wheat crops.

Reading, Berks Co.

The fly has perhaps never been in our county so destructive to the wheat as this season. The rye crops look tolerably well.

Greensburg, Westmoreland Co.

Wheat will be a fair common crop—about one-fourth less than last, which was abundant.

Carlisle, Cumberland Co.

The late and long continued rains have injured the crops in some parts of this county, but recently they have much revived in appearance.

Milford, Pike Co.

The prospect for the wheat is supposed to be hardly half a crop.

Lancaster.

The wheat crops have so completely failed, that many of the farmers who have disposed of their last year's crops, have purchased for the coming year. Farmers who raised last year from 1000 to 1500 bushels will this year scarcely have sufficient for seed.

Chambersburg, Franklin Co.

From the best information I can obtain, this valley from the Potomac to Philadelphia, will not give more than the seed and bread. Many of our farmers will not have their seed. We have a good deal of old wheat in this county.

DELAWARE.

Georgetown, Sussex Co.

There is a very little wheat raised in this county, and the last winter destroyed the small crops that were sown. Corn is our staple, and the present prospect is that there will not be half a crop.

Dover, Kent Co.

Wheat and rye much injured by the winter and fly. Oats remarkably fine, and very good prospects for a large crop of corn.

MARYLAND.

Elkton, Cecil Co.

Many of our farmers will not have more than their seed from their wheat fields, and some think they will not have even that.

Denton, Caroline Co.

Of wheat there is not enough to half sow the same ground.

Snowhill, Worcester Co.

The crops of wheat will not much more than yield the seed.

Cambridge, Dorcester Co.

Throughout this county there is not one farm that will yield a fair average crop of wheat; the late rains improved the appearance of the wheat crop very much, but the prevailing winds during the whole time, bruised the heads to such an extent that nearly one half of what was headed out will be destroyed by the blast. In our low lands the opinion prevails that the corn crop will be almost entirely lost: on the uplands the prospect is fair.

Hagerstown, Washington Co.

Our wheat crops where never so poor throughout the whole county. There will scarcely be enough raised for seed and bread. Rye is a shade better, but very indifferent. The oats and corn crops look well. Farmers are sowing buckwheat and millet in their wheat fields.

Frederick, Frederick Co.

Wheat is very bad—not more than one-fourth of an average. The rye crop in this immediate neighborhood will be less than half a crop. The appearance of the corn and oats has materially improved within the last ten days, and with a continuance of favorable weather, both will be very large, as many fields were ploughed up and planted in corn aud oats.

Leonardtown, St. Mary's Co.

The crop of wheat is not an average of the last five or ten years, though more promising than last year.

VIRGINIA.

Suffolk, Nansemond Co.

Corn crops much injured by constant rains, but the last ten days of constant dry weather has improved them much.

Scotsville.

Some farms will not make as much wheat as was sown.

Chesterfield Court House.

The wheat seeded in this county will not average more than two or three to one.

OHIO.

Tiffin, Seneca Co.

The general impression is that our creps of wheat, rye and corn will be more abundent than they ever have been heretoforo.

Wilmington, Clinton Co.

The drought in April and May, and the constant rains which succeeded, it was feared would destroy the prospects of the farmers; but for the last two weeks the weather has been fine, and all sorts of grain look promising.

New Lisbon Columbia Co.

We rarely have any but good crops in this region, and the present promises about as usual.

We take the following letter in relation to the Sugar Beet from the New England Farmer. It relates to a subject which is becoming of much interest in France, and will we doubt not attract attention, and become a profitable business in this country.

SUGAR BEET SEED.

Washington, June 27, 1836.

THOMAS G. FESSENDEN, ESQ.

Dear Sir—I have procured a small quantity of the seed of Sugar Beet, which I shall send to you to-day by Mr. William W. Stone, who will be in Boston on Friday or Saturday of this week. The cultivation of this vegetable, and the manufacture of sugar from it in France has become of great consequence in that country, and is, I think, attracting much attention on this side the Atlantic. It appears to me the cultivation of the Beet in some of the Western States can be carried forward with great success. I do not know whether it can be made profitable in New England, but will thank you to distribute the seed I now send to you among our agricultural friends,—and to accept the assurances with which I remain, dear sir,

Your faithful and ob't serv't.

ABBOTT LAWRENCE.

By the Editor.—The above with the parcels of Sugar Beet seed therein alluded to, have laid us under renewed obligations to the Hon. writer, whose patriotic efforts promote the most important interests of his country, deserve the gratitude of every friend to mankind. We shall distribute the seeds in small portions among cultivators who will be likely to make the most of them. As the season is far advanced, it will, we think, be advisable to soak the seeds in warm water at least 48 hours before planting, which will much accelerate their germination.

THAMES TUNNEL.—The excavation made for the Thames Tunnel is about 38 feet in width, and 22 feet six inches in height, presenting therefore, an opening exceeding 850 feet. The whole of this excavation including its two sides, which may be computed at 400 feet, is secured by means of a powerful apparatus designated the shield, as is also the roof of it, which measures 350 feet. At full tide, the weight of both earth and water, which constitute *the superincumbent pressure*, is not less than 700 tons.

The *ceiling* of the shield consists of 24 or 26 pieces of cast-iron, denominated staves, closely adjusted; and as they are sometimes made to relieve each other, and therefore subjected to an increased load, they are, for greater strength, made like inverted troughs of cast-iron; their breadth is 18 inches, the depth of their sides 7 inches, and their length 9 feet, independently of a tail of wrought-iron which overlays the brick work. The edges in front are made sharpe for entering the ground, and the external surfaces of the staves are planed very true. Similar staves are laid against the sides of the shield, all planed and equally well adjusted; each stave can be impelled singly as sheet piles are. Upon the whole the shield may be viewed as a coffer-dam, which, instead of being moved in a perpendicular direction, is placed and impelled horizontally. The standing part of the shield consists of 12 parallel frames' all independent of each other.

The front of this vast excavation is protected in a different manner from that of the sides. It is panelled all over with small boards, each of which is 3 feet long and six inches wide. There are, therefore, upwards of 500 of these boards, technically called *polings*, for covering the whole face of the excavation. Every one of these polings is held in place, and secured by means of two hand-jacks or screws, abutting against the frames. There are, therefore, upwards of one thousand of these jacks in action for securing the face of the excavation, or rather, for pressing against the ground with sufficient power to prevent any disruption of its various strata; for

were the ground to be at all deranged, the pressure against the sides and front of the shield might soon increase to 2,500 or 3,000 tons, independently of that of the superincumbent pressure.

It is further to be remarked, that every successive tide, which at its full head is 76 feet above the foot of the excavation, causes an incessant variation in that pressure, tending to strain the hard strata, and to soften or knead the intervening soft ones; a ubn quite unnoticed by projectors of plans ftet, which proved fatal to those who attempted the drift-way under the Thames in 1808. The pressure exerted against the front of the excavation by the agency of the shield, must therefore be uniformly kept at a maximum. The shield is advanced only 9 inches at a time, while the brick structure proceeds simultaneously.

It would be well if those who feel disposed to enter the list of competitors were first to consult the report of those miners who directed the attempts that were made and carried on with so much perseverence, between the years 1803 and 1808, with the ultimate object of opening a road-way under the Thames at Rotherhithe. These were miners (Cornishmen,) engineers in that branch of the art, and, consequently, eminently qualified for the task in every respect; they were as sanguine too, as any of the projectors of this day; and their excavation was limited, in the first place, to a simple driftway, the height of which was only 5 feet, the breadth 2 feet 6 inches at the top, and 3 feet at the bottom, forming, therefore, an excavation that was sixty times smaller than the excavation which has been made for the Thames Tunnel. Diminutive, however, as this hole was when contrasted with that of the Tunnel, the ground of the roof, though supported by substantial planking, gave way once in a fluid state, leaving an unsupported cavity over the roof of the drift-way; still it held itself up; but a second accident of the same nature having occurred under a very high tide, the river broke the ground and entered the drift. In both cases it was the loose ground that first forced its way into the drift, and the river afterwards. The miners succeeded in filling the hole and in re-entering the drift, but the men could not continue the working; they were, according to the engineer's report, *driven out of it by the frequent bursts of sand and water*, and it was acknowledged by him to be quite impracticable to proceed farther; so, after having probed the ground from underneath in many places, he concluded and reported that it was impossible to make an excavation of any size under the Thames.

But he resorted to one expedient which he conceived would answer the emergency —one which, at any rate, demonstrates the intrepidity of this engineer. That is, in order to clear or pass through the place which had been filled up in closing the hole made by the breaking in of the river, he reduced the height of his drift from 5 to 3 feet. The men and the engineers, too, had therefore to work on their knees. Awful enough for such a task! Thus reduced, the area of the excavation of this drift hardly exceeded the one-hundreth part of that of the Thames Tunnel under corresponding circumstances —*London Mechanics' Magazine.*

MACHINE FOR REGISTERING THE VARIATIONS OF THE TIDE AND WIND.—The general principle of the machine is such, that a circular dial being fixed to the axle of a clock, revolves with a uniform motion once in twenty-four hours; a pencil is also moved vertically up and down by the rise and fall of the tide; which combined motions of the dial and pencil trace a curve upon the face of the dial, whereby the height of the tide, at any particular period of time, may be ascertained; also the time of high and low water, and the variable rate of ascent and descent.

The direction of the wind is indicated by a circular dial, fixed horizontally to the vertical axis of a wind-vane; and, by means of the clock, a pencil is made to move uniformly, at a given rate, from the centre of the dial, towards the circumference, so that, if the wind remain stationary upon any point of the compass, the mark traced by the pencil will be a straight line, radiating from the centre of the dial; but if the wind be changing, the dial will revolve, and the combined motions of the dial and pencil will trace out a curve, by which the direction of the wind, at any particular period of time, will be indicated.—*Jameson's Journal.*

COLOUR OF THE SKY AS SEEN FROM HIGH MOUNTAINS.—M. Bousingault comparing his own observations upon several high mountains, is disposed to attribute the blackness which the sky sometimes presents, to the effect of strong light reflected from the snow and ice upon the eyes. He observed a remarkable difference of tint in the sky seen from the highest point of Chimborazo which he was able to reach, and from the plain. On the ascent of Antisana at a much lower elevation, the sky seen from the icy plain appeared black, and in the evening of the day of observation he was struck with snow-blindness.

In no ascent has he been able to see the stars in day time, an experiment which he made fully in his ascent of Chimborazo.—*Ann. de Chim. et de Phys.*

HEIGHT OF BAROMETER, &c. NEAR THE TOP OF CHIMBORAZO.—On his ascent of Chimborazo, M. Bossingault found the barometer to stand at 14.47 inches at 2 P. M., the thermometer being at 46° Fah. The height above the level of the sea was 6004 metres (6670 yards.)—*Ibid.*

EXPANSION OF LIQUIFIED GASES, &c.—The very remarkable fact of the expansion of liquified carbonic acid, lately observed by the French academicians, has been fully verified by Mr. Kemp, lecturer on chemistry, who finds that the expansion is not peculiar to this liquified gas, but belongs to all other gases in the liquid state. At a meeting of the society of arts, Mr. Kemp exhibited a specimen of the liquified sulphurous acid gas, hermetically sealed in a glass tube, and separated from the materials from which it had been generated. This specimen of the liquified gas occupied eight inches of a tube, five eighths of an inch in internal diameter, and when cooled from the temperature of 60° down to 14° of Fahr., or the point at which it becomes liquid under the ordinary pressure of the atmosphere, it contracted one inch; but when heated an equal number of degrees above 60°, viz. 46°, it expanded through a greater distance than it had before contracted, by the abstraction of an equal amount of caloric, showing that the expansion went on at higher temperatures in a slightly increasing ratio, so that the expansion between its liquifying point, viz 14° and 212°, the boiling point of water, is nearly one-third of its whole volume, the pressure against the expansion being at 212°, about twenty-five atmospheres. That this property does not belong to the liquified gases exclusively, but resides equally in all other fluids, when raised above their boiling points, is shown by the following experiment; thus, ether, when raised from the temperature of 60° to 95° of Fahr., or its boiling point, undergoes an inconsiderable expansion compared with the expansion produced by an equal increase of temperature above its boiling point, when it may be said to be in the same condition with the liquified gases, in regard to pressure, and suffers nearly an equal expansion, by an equally increasing temperature with the liquified gases.—*Jameson's Jour.*

ARSENIC IN ENGLISH SULPHURIC ACID.—Vogel, of Munchen, infers, from his experiments on sulphuric acid:

1. That the Nordhausen acid, prepared from the sulphate of iron, contains no arsenic; the precipitate with sulphuretted hydrogen being pure sulphur.

2. Concentrated English sulphuric acid, prepared in leaden chambers, contains arsenic, and the precipitate produced in it by a current of sulphuretted hydrogen, consists of sulphur and orpiment.

3. No precipitate of sulphur takes placed in consequence of a current of sulphurette, hydrogen being passed through English sulphuric acid, diluted with from four to six parts of water; the precipitate consisting of an orange yellow powder, or orpiment.

4. Rectified English sulphuric acid contains no arsenic, this substance remaining in the residue. The rectified acid, diluted with water, is not rendered muddy by sulphuretted hydrogen. The German sulphuric acid, diluted with water, becomes white when the latter gas is passed through it, as it always contains sulphurous acid.

5. The arsenic always exists in sulphuric acid in the form of arsenious acid, never as arsenic acid.

6. Concentrated boiling sulphuric acid can dissolve one-third of its weight of arsenious acid, of which the greater part separates on cooling. The arsenious acid may be precipitated, in a great measure, from the concentrated sulphuric acid, when cooled, by absolute alcohol, although it is somewhat soluble in alcohol.

7. Lastly, it is absolutely necessary that in all preparations to be used internally, rectified, or, at least, German, sulphuric acid, should be employed.—*Thompson's Rec. of Sc.*

M. Brunel's Mode of Constructing Arches without Centring:—Institute of British Architects, 14th March.—The secretary read a paper explanatory of M. Brunel's mode of constructing brick arches without centring; and also explained various experiments of that gentleman, with regard to the insertion of iron hoops in constructions of brick work in cement. * * * The principle, which was originally adopted, and its efficacy ascertained, in the formation of the shaft of the Thames Tunnel, is founded upon the cohesive power of Roman cement, coupled with a system of ties, the most eligible substance for which, from a series of experiments performed by M. Brunel, appeared to be hoop iron. The piers having been constructed in the usual manner, it is proposed to pin or secure to

them a mould for the purpose of determining the contour of the arch. A narrow rib may now be carried over, and keyed, using cement (with the occasional insertion of ties,) which, by its adhesion to the brick being greater than the cohesion, enables the arch to be carried to any extent within the limits of the strength of the material. The several arches being in succession, once keyed, they will be in a state to receive the whole of the materials necessary to the completion of the bridge. The bridge of the Santissima Trinita at Florence was particularly adverted to, affording a magnificent example of rubble construction, and the durability of the material. The arches are composed of a mass of irregular stones embedded in mortar, having the consistence of a single stone, or of two stones abutting against each other at the crown.—*Ed. Arch. Mag.*

The Mode of Heating the Elephant's House in the Zoological Gardens in the Regent's Park.—A mode of heating has been lately adopted with great success, in a new house prepared for the reception of the elephant in the Zoological Gardens, which appears well adapted for warming churches, chapels, and all other buildings having incombustible floors. It is thus described in the Times:—"It consists in a common brick drain which is conducted under the floor around the interior of the building. At the commencement of it there is a hole in the floor to the depth of about two feet, such as would be provided for the sink to any common drain; and the other end of the drain, instead of terminating in a sewer, or cesspool, finishes in an upright chimney shaft. A small quantity of fuel is then thrown in what may be called the cesspool at the opening, and lit: the effect is surprising. The downward pressure of the air to the vacuum caused by the fire, produces a draught which is equal to that of a furnace. All the smoke being driven down through the fire, is there consumed, and, with the body of heat, rushing through the horizontal drain for the length of 110 feet before it reaches the upright or chimney shaft, all, or nearly all, the heat transudes through the floor, from which it ascends with as pure a warmth as that from the sun. We understand there is a floor of concrete nearly a foot in thickness, over this drain, which, with the large quantity of humidity contained in it, must materially lessen the transmission of the heat: still the warmth is considerable.—*Arch. Mag. for April.*

DOMESTIC MECH. INTELLIGENCE.

Philadelphia Malleable Iron Foundry.—We doubt not that a large portion of our city readers have, as we certainly have, seen with admiration at the height, and wonder as to the use, of a large chimney peering towards the heavens from an extensive range of buildings near the junction of Sixth street and Germantown road. The building is a Malleable Iron Foundry, the only one, we believe, in this State. Messrs Stelwagon & Bryant have vested a very large amount of capital in this interprise.

The iron used in this foundry is made in Pennsylvania, and the coal now burned is also obtained in this state, though the Newcastle coal is preferred. The articles manufactured are of almost every kind usually made from wrought iron. We noticed on our visit, an immense variety, of articles which had been cast to order, from pieces not larger than a fourpenny nail, to a pole hook for a coach, including trimmings for lock smiths, gun msiths, &c.

The Secret of Making.—The mode of operation is, after moulding and casting in the usual manner of foundries, to place the articles in large circular boxes, which are turned rapidly by the operation of steam engine, and the friction caused by the frequent contact, separates the coarse sandy crust always found on the outside of the newly cast piece, and gives it the appearance of having passed through the hands of a workman. The noise made by turning of these hollow cylinders is, we think, as little endurable as any we remember to have heard, or rather *felt*, for the racket was so deafening, that hearing, after a few moments endurance, was quite out of the question.

From the process of scouring, so completely performed by attrition, the castings are taken to the *nealing* room, where they are deposited in furnaces of a proper heat, and kept in that position for six or seven days. When removed from this ordeal, the castings are so free from the carbon of their first estate, that they may be bent like similar articles made of wrought iron, and are apparently malleable. We submitted several pieces, such as small stirrups, bits, parts of gun locks, &c., to the action of the hammer, and they took any shape which ordinary wrought iron of the same thickness would have assumed under similar action. After the nealing process, the various parts of articles are put together by workmen, and the whole prepared for immediate use, or, if necessary, for the hands of the "plater," as in the case of stirrups, bits, mountings, &c.—[*Philadelphia U. S. Gaz.*]

Northampton Paper Mills.—A company, incorporated last winter, have commenced the erection of works for the manufacture of paper, under the direction of Mr. S. W. Rowe late of Groton, at the site formerly occupied by the Mill of Mr. Daniel Butler. The building is to be 125 by 38, and built of brick. They design to operate seven engines for grinding rags, and two 'foudrinier-machines,' for making paper. They expect the mill to go into operation about the 1st of January, and to be able to manufacture about 50 reams per day, as large as our sheet, and perhaps more. It is intended to use principally linen stock, which is obtained by importation from Austria, Italy, &c—In these countries very little paper is made and as little used. The rags are obtained by the rag merchants at the fairs, or public sales held there. A torn linen garment is elevated upon a pole as a sign, and the peasantry come in with their rags and dispose of them to the merchants. They are then baled up and shipped to our cities where they can be purchased at a reasonable rate.—[*Hampshire Gaz.*]

Mineral Wealth of Missouri.—However extravagant some of the representations may appear, there is undoubtedly a great amount of mineral wealth in Missouri. It was stated at the late convention in St. Louis that within a circumference of *sixteen miles, there are seventy-three mines of lead and iron*, which had produced in one year more than seventy millions of pounds of ore!

Other minerals are found in rich abundance, and as the population of the country increases they will be brought into market. There is a wide field for future enterprise in the vast region between the Mississippi and the Rocky Mountains.

Gold—The Dahlonega Recorder & Spy, published at Dahlonega, Lumpkin county, (Ga.) states that a solid lump of gold weighing 259 pwts., estimated at $241, in its native state, was taken out of the old Loud mine, a few days since, by Major Logan. This mine sold for $30,000 in 1822; but at an administrator's sale in May last, it brought only $935. The mines in the neighborhood are yielding a better profit than they have done for years.

Launch.—An *iron* steamboat will be launched from the upper yard of the Steamboat Company (near the canal,) To-morrow, 22d inst., at 2 o'clock, P. M. She is an imposing boat, and will doubtless glide into her destined element with as much grace as CHATHAM, whose name she is to bear, displayed in the Senate House. We are gratified to find such spirit evinced at our boat yards. Mr. Cant, who superintends the construction of all but the iron work of this boat (which was brought in pieces from England,) has several boats on the stocks, which exhibit a "forward march" in the commercial enterprise of our city.—[*Georgian.*]

Value of Silks imported into the United States, 1835—Near sixteen millions and a half of dollars. All this will be saved to the country in a few years by raising and manufacturing our own silks, and we shall then begin to export manufactured silks to South America and perhaps to China! as we now do cotton fabrics.

FOREIGN MECH. INTELLIGENCE.

The annual public meeting of the Central Agricultural Society, was held on Sunday at the Hotel de Ville, M. Passy, Minister of Commerce, in the Chair. The attendance was numerous and highly respectable. M. Soulange Bodin, Vice Secretary, in reporting the labors of the Society during the past year, dwelt upon the ameliorations introduced into agriculture, and almost every branch of rural economy by the efforts of the Society, the prizes it confers, and the encouragements it holds out. The culture of beet-root and the manufacture of native sugar, the propagation of mulberry trees and silkworms, the breed of sheep and production of wool, the turning to account of communal lands and forest plantations,

are the principal points upon which the report expatiated. It showed that the propagation of silkworms, formerly confined to the South of France, was extending to the centre and the North, and that the climate of the country situated to the North of the Loire does not, as far as could be judged from the experiments already made, present any real obstacle to the extension of this productive branch of industry. On the beet-root sugar question, the report expressed apprehensions that if a tax were laid on the sugar at the present moment, it would greatly impede this important branch of industry; whereas, if it were left unfettered for some time, it would take a wide development, and become an abundant source of national wealth. Thls view of the subject seemed to meet with universal assent, as the statement was received with applause. A circumstance that added greatly to the interest of the meeting was the announcement of a silver medal having been adjudged to M. Lecerf, a farmer at Annaing, near Valenciennes, for having established the first a small beet-root sugar manufactory, in which, upon his own premises, he, with the aid of his family alone, produces 100 lbs. of sugar a day. Not being able to come to Paris to receive the mark of distinction, M. Lecerf had deputed one of his friends to receive the medal, who thanked the Society in the name of M. Lecerf and the whole Department du Nord for the honor conferred on one of its inhabitants.

Thursday the first public trial of a new paddle wheel for steam vessels was made on the river with complete success, and is likely to effect a great change in steam navigation. The new paddle-wheel was affixed to the *Red Rover* steamer. The result in diminishing the back water, or lift, in the increase of speed and curtailing the swell, was quite satisfactory, and admitting of the great curtailment of the width (the new wheel being upwards of three feet narrower than the old one), without loss of purchase or hold of the water, was very apparent. The principle seems to consist in the exposure of the entire surface of the float to the water while in the most advantageous position for propelling, which upon approaching the surface becomes divided into a series of angular bars, which suffer the water to pass through the interstices, and thus transfer the action of the *primum mobile*, or steam power, to the next float in succession, instead of uselessly wasting it on the water lift. A considerable ferment in the water (though the swell was not so heavy) was apparent, which, however, a little alteration in the construction will considerable diminish, and which the experiment will enable the inventors to accomplish. The merits of the invention may be summed up under four heads:—A great saving of fuel; a diminution, exceeding one-third, of each paddle box; more speed, and less swell. It is only necessary to state that the new wheel, though the paddle box was not at all adapted for it, did more work than the old one on the larboard side, which is four feet wider.—*Globe.*

Dr. Ayme, in a recent essay which he read at the Institute, endeavors to prove that it is possible to obtain such a hold on the upper atmosphere, as to be able to direct a balloon with all the steadiness and certainty of a boat moving on the waters. This he proposes to accomplish by means of oars or levers to be attached to the car, and which are to be made of oiled skin or or cloth capable of containing an adequate quantity of hydrogen gas, the specific gravity of which, being lighter than the air would obtain a hold on the natural fluid, as they would meet with the same resistance as the balloon does itself.

Dr. Agostino Bassi, of Lodi, having discovered a means of curing the contagious disease among silk worms called the *muscardine*, which has frequently cleared a whole establishment at the moment when the proprietor was on the point of reaping the benefit of his care and expense, his friend Count Barbo of Milan, with the view of extending the benefits of this valuable discovery to France, has published an abridgement of Dr. Bassi's work on the subject.

A Brighton wiseacre, according to a journal of that town, has been *preserving* the coin of the realm by inclosing some in a ball of wax, which he placed in a balloon of Indian rubber inflated with gas, so as to raise it several thousand feet above the earth, "*where, floating in space*, the memory of our nation and its monarch *may be recorded for hundreds of thousands of years!*"—*Age.*

A remarkable proof of the facility with which beet-root sugar manufactories may be establi hed, is presented at this moment at Wallers in the department du Nord.—Four of the villages, by advancing 50 fr. each, have formed a joint capital of 200 fr., and with this they produce between 40 and 50 lbs. of sugar, of rather inferior quality, a day. They employ currycombs to rasp the beet roots, which they put into a napkin press to extract the juice, and then boil the syrup in common culinary boilers.

Government having determined on discontinuing the prizes for chronometers, which shall have performed within certain limits during a twelve month's trial at the Royal Observatory, Greenwich, the last public trial terminated on the 1st inst., when Mr. J. Carter, of Tooley-street, was again declared (as last year) alone entitled to any reward. The extreme error for twelve months of Mr. Carter's chronometer No. 160, was one second, 47 hundredths.—*Times.*

A newly invented break for stopping the train of Railway carriages at a moment's notice was exhibited to Mr. Rennie and several scientific gentlemen on Saturday, as well as the carriages fitting up on Lord Dundonald's principle, with which they expressed themselves perfectly satisfied, as to the impossibility of accident or their upsetting.—*Sun.*

A new instrument, called the bass clarone, was admirably played on by Mr. Willman, at the dinner of the Royal Society of Musicians; it partakes of the cornobassetto, the clarionet, and the bass horn; the compass is from CC below to D in alt, or perhaps higher; it is blown into by a reed, like that on a clarionet; the tone is remarkably sonorous, and the lower notes resemble those which are called "diapason" on an organ.—*Herald.*

Seldom within these many years have the Carron works been more busy and extensively engaged than at present.—Besides the immense cargoes lately shipped for various parts of England and the Continent, there are now within the works upwards of 300,000 tons of smelted iron, both from the hot and cold blast.—*Stirling Journal.*

We learn from Berlin that the manufacture of sugar from beet-root has become quite a mania in Prussia, and that the land owners have given up the cultivation of potatoes for distillation, and planted all their fields with the new saccharine root.

The *German National Gazette* states that Dr. Tier has invented a process, by aid of which, in eight hours, beet-root can be transformed into white and solid sugar. In October and December the produce was from 9 to 10 per cent., comprising the molasses.

During the survey going on in Ireland, under the Ordinance Department, Lieut. Drummond's light was seen from one of the mountains of Mourne, in Downshire, a distance of 60 miles.—*Courier.*

A looking glass of extraordinary dimensions has been purchased by the King, as a present to the Imaum of Muscat.—*Post.*

If Valentia harbor in Ireland is made a packet station, a communication can be had direct with New York in *ten days*, from land's End to land's End.—*News.*

THE FIRST CAR.—The Utica and Schenectady Railroad from the city of Schenectady to St. Johnsville, in this county,—a distance of 48 miles,—was tested on Tuesday last. On that day one of the new locomotives belonging to the company, having attached to it a long train of cars, containing a large number of persons, passed over the road between the places named, and returned without difficulty, delay or accident. Two of the directors of the company the Commissioner of the road, G. M. DAVISON, Esq. the principal engineer, Mr. YOUNG, and his assistance, Messrs. HIGHAM, LEE and STEWART, together with several gentlemen of Schenectady, Amsterdam, this village and other places along the line, were of the party. All were highly gratified and delighted with the *experiment*. The arrival of the train at this place, was greeted with the fireing of cannon, cheering and other demonstrations of satisfaction. The distance between this village and St. Johnsville—twenty three miles—was passed over by the train on its way up, in one hour and five minutes, and in *fifty five minutes* on its return. We may therefore expect that when the road is completed from Schenectady to Utica, the entire distance—eighty miles—will be accomplished in less than four hours. In view of the advantages which the commu-

nity, particularly the travelling public, will derive from this great improvement, all must be anxious for its completion. This desirabie object, we are informed will be attained by the fifteenth of August, if not sooner.

CLEAVELAND, WARREN, AND PITTSBURGH RAILROAD.—This is part of the great line of communication connecting the country on the Upper Lakes with the cities of Philadelphia and Baltimore. It is therefore of little less importance to the prosperity of Michigan, than if it lay wholly within the limits of the State.

The route has been examined recently by an engineer, and estimates made of the expense. some considerable obstacles occur on the eastern part of the route; the greatest is the Rock Bluff near Youngstown, which will require about 35,000 cubic yards of rock excavation, and as many of earth. The greatest ascent or descent is not more than 40 feet per mile. The distance from Warren (Ohio) to the Pennsylvania line, is 23 miles, and the expense of grading and bridging is estimated at a little less than four thousand dallars a mile.

A meeting of the Directors have ordered that 5000 additional shares of stock be created, and that the same be sold in the cities of Pittsburgh, Philadelphia, and Baltimore. It was likewise ordered, that the first five miles of the road commencing in the vicinity of Erie street in the city of Cleaveland, be located and put under contract, on or before the first of September next; and that a further portion of the road not less than twelve miles, be put under contract on or before the first of October next.—*Detroit Jour. & Cour.*

NICKOLL'S PATENT CONDENSING RAILWAY LOCOMOTIVE.

Sir,—I beg to invite the opinions of your correspondents upon the following proposed improvements upon my plan (*Mechanics' Magazine* No. 635,) for a railway condensing locomotive.

The boiler being constructed and situated as before described and represented, I would substitute in the place of the two equi-angular crank condensing engines, D, two double-acting high pressure engines, with the addition of a condensing apparatus (consisttng merely of an enlarged air-pump,) which I would fix in the place of the condenser F; the apparatus in question, together with the hot-water pump, to be worked through the medium of a cross-head and separate cranked shaft, by an excentric from the shaft of the engines.

Concerning the refrigerator for cooling the hot water of the coudenser, late experiments haue convinced me, that to maintain the cooled water, even at the temperature 80° Fah., an evaporating superfices of full 200 feet per horse power would generally be desirable.

It is not necessary to employ the draft of a furnace, or other means, to produce a current of fresh air in the refrigerator—for moisture, so far from loading the air with its weight, communicates, like h:at, increased expansion and elasticity; consequently, as by reason of the heat and vaporisation of the hot water in the refrigerator, the specific gravity of the air therein would be lessened, so by a little elevation of the eduction air chambers T, the refrigerator would establish a current of fresh air for itself.

With a given quantity of steam, I anticipate about one-twelfth greater effect by the employment of my high pressure condensing, instead of the ordinary high-pressure locomotive; but the steam blast being wanting in the condensing locomotive, the expenditure of fuel might perhaps exceed in a sixth ratio what might be required in an uncondensing locometive; the ultimate economy, however, (to pass by other well-known inconveniences of the steam blast,) I apprehend to be more than questionable, because of the powerfully exfoliating influence of the very intense heat which the blast occasions upon the thin and oxygensible material of which locomotive boilers are, and, with our present knowledge of metallurgy, m3st be constructed. Yet, if in no other point of view, assuredly as respects economy in the item of water, the superiority of my condensing, as compared with the ordinary locomotive, may be admitted—first, on the grouud of the presumed somewhat more economical application of the steam; secondly, from the cooling influence of successive currents of fresh air upon the hot water of the refrigerator; and thirdly, from the vaporisation of a given weight o! water, say of the temperature 100° Fah., (according to what one may infer from lately published experiments of Desormes,) absorbing about one-third more caloric, than steam evolved of four atmospheres elasticity.

I am, Sir, your obedient servant,

J. W. NICHOLL.

STEAM CONVEYANCE BETWEEN PADDINGTON AND THE CITY FOR HIRE.

Mr. W. Hancock, whose perseverance certainly deserves success, commenced running his steam carriages, the "Enterprise" and "Erin," on Wednesday morning last, at nine o'clock, from the station in the City-road to London Wall; from thence he proceeded to Paddington, and returned to the city. On the first day he performed three of these journeys, on the second, four, and on the third (yesterday,) two, before noon. The average time of travelling over the above ground has been 1 hour and 10 minutes, including stoppages to take in passengers, water, and coke. This is just half the time the horse-omnibusses take in going over the same ground. In the nine journeys performed, the number of passengers carried was 220, averaging about 12 persons each single trip. Mr. Hancock intends to run his carriages regularly the same number of journeys daily, for the present, and very shortly to increase the number.

Lond. Mec. Mag.

IMPROVEMENT.—We are pleased to learn from W. Thorburn, Seedsman, at Albany, and brother of the proprietor of the famous Seed Store at New-York, that he intends to establish the coming fall, an Agriculture Warehouse, (after he plan of the Boston Store) for the sale of machines, tools, and all the patented and improved articles for Agricultural purposes now in use, and to further the introduction of other improvements, that may from time to time be made. This enterprize we doubt not will succeed, situated as it is in the very head quarters of a vast, and growing agricultural community.—[*N. England Farmer.*]

The following article contains hints useful to instrument makers and tuners. We have always been of the opinion that the practice of our predecessors in such matters has not been properly treated before adoption. The manufacture of musical instruments is increasing daily, in our country it has always been a favorite subject to us, and we desire to hear and see more of improvements in that branch.

ON TUNING—NEW MATHEMATICAL DIVISION OF THE SCALE.

Sir,—The following is a mathematical division of the scale, assuming the bass C as 30 inches:—

C . . .	30.
C *sharp* .	$28\frac{5506}{30049}$.
D . . .	$26\frac{29366}{30049}$.
D *sharp* .	$24\frac{21008}{30049}$.
E . . .	$23\frac{11553}{30049}$.
F . . .	$22\frac{11042}{30049}$.
F *sharp* .	$21\frac{4131}{30049}$.
G . . .	20.
G *sharp* .	$18\frac{430338}{30049}$.
A . . .	$17\ \frac{27}{49}$.
A *sharp* .	$16\frac{38248}{30049}$.
B . . .	$15\frac{48975}{30049}$.
C . . .	15.

It is obtained thus:—

$\frac{2}{3}$ of 30	= 20	G above.
$\frac{2}{3}$—20	= $13\frac{1}{3}$	× 2 D.
$\frac{2}{3}$—$13\frac{1}{3}$	= $8\frac{8}{9}$	× 2 A.
$\frac{2}{3}$— $8\frac{8}{9}$	= $5\frac{25}{27}$	× 4 E.
$\frac{2}{3}$— $5\frac{25}{27}$	= $3\frac{77}{81}$	× 4 B.
$\frac{2}{3}$— $3\frac{77}{81}$	= $2\frac{154}{243}$	× 8 F *sharp.*
$\frac{2}{3}$— $2\frac{154}{243}$	= $1\frac{251}{729}$	×16C *sharp.*
$\frac{2}{3}$— $1\frac{251}{729}$	= $1\frac{373}{2187}$	×16G *sharp.*
$\frac{2}{3}$— $1\frac{373}{2187}$	= $\frac{5120}{6561}$	×32D *sharp.*
$\frac{2}{3}$— $\frac{5120}{6561}$	= $\frac{10240}{19683}$	×32A *sharp.*
$\frac{2}{3}$— $\frac{10240}{19683}$	= $\frac{20480}{59049}$	×64F.

These multiplyers are not arbitrary numbers, but as the second stage brings us beyond the first octave, we must double it to bring it within the octave; and as the fourth stage brings us beyond the second octave, it must be twice doubled (or quadrupled), and so on of the rest.

A piano forte tuned according to this scale would, I think, have a very pleasing effect: but, independent of the impossibility of tuning to that exactness, piano forte makers, instead of doubling the length of string to produce the sound of the octave below, *must necessarily* use a thicker wire, or we should have piano fortes as large as houses.

The following is Earl Stanhope's scale:—

C—C, perfect octave.
C—G, perfect fifth.
C—E, perfect third.
E—B, perfect fifth.
C—F, perfect fifth.
F—B *flat*, perfect fifth.

E—A *flat*,bi-equal third.*
A *flat*—C, bi-equal third.
A *flat*—E *flat*, perfect fifth.
A *flat*—D *flat*, perfect fifth.
D *flat*—G *flat*, perfect fifth.
G—D, D—A, A—E, three tri-equal fifths.†

These tri-equal fifths, though flat, are not of such a degree of flatness as to be offensive to the ear; differing from a perfect fifth only 829,885 parts in 300,000,000, or $\frac{829885}{300000000}$. If this interval G—E, as in Kimberger's method, be divided into one perfect fifth, and two equally flat fifths—such, for instance, as the perfect fifths G—D, and the equally flat fifths D—A and A—E; then each of these two last fifths, by becoming too flat, is offensive to the ear. And if that same interval be divided into two perfect fifths, and one flat fifth, then this flat fifth so produced is still more offensive.

In tuning each key throughout the whole instrument, too much attention cannot be paid to the beatings, as that is by far the most accurate way of tuning by the ear. For, whenever a third, fourth, fifth, sixth, or octave is quite perfect, there is no beating to be heard. But, on the contrary, when any of them are in any degree imperfect, though not distant from perfection, a beating is always audible. A very slow beating proves that the distance from perfection is not great; but as the beating becomes quicker, the distance from perfection becomes more considerable, and, from the equality of the beatings, *equal deviations* may in like manner be correctly ascertained.

Some tuners in order to assist the fifths, have proposed to tune the octaves a little imperfect. The objection to this are obvious, for if we *sharpen* the octaves to assist the fifths, it injures the thirds; and if we *flatten* the octaves to assist the thirds, it injures the fifths. Such is the construction of the human ear, that we can bear a much greater deviation from perfection in the fifths than we can in the octaves, and a still greater deviation in thirds than either the fifths or octaves. Again, however small the deviation may be in a single octave, it becomes very sensible in two or three, and most offensive in six or seven.

We have been in the habit of considering the Wolf as an inherent imperfection in every instrument that has exactly twelve fixed keys in each septave; whereas so far from being an imperfection, it is precisely the proper distribution of it that produces that charming variety of character between the different keys, which is so essentially requisite in a well tuned instrument.

April 8, 1836. CORIO.

We hand the following article over to Mr. E. F. Johnson, as he is the proper person to answer them, and both able and willing to do so as far as we can judge.

From the New York American

SHIP CANALS.—From reading the notice in your valuable journal I was induced to examine the maps of the proposed New York Ship Canals; the one accompanied with a valuable memoir by Capt. W. G. Williams, of the U. S. Topographical Engineers, for a communication around Niagara Falls. It appears that Capt. Williams estimates one route which he recommends at $4,744,982$\frac{38}{100}$, and another route of 7$\frac{3}{4}$ (or 7.73) miles in length, between Porter's store-house on the Niagara river, above the Falls and Lewiston, at $3,610,596$\frac{27}{100}$, which is at the rate of $46,708$\frac{97}{100}$ per mile.—These estimates were for a canal of the dimensions of 110 feet width of surface and 30 feet deep, and the lockage is stated at 119$\frac{1}{2}$ feet.

The *Ship* or *Steamboat* Canal surveyed by E. F. Johnson, Esq. between Utica and Oswego, is estimated for a canal of 90 feet width of surface and 8 feet deep and has 180$\frac{1}{2}$ feet of lockage; the distance is 92$\frac{1}{2}$ miles and the aggregate estimate is $1,131,-989, which is at the rate of only $12,237$\frac{71}{100}$ per mile. I wish to inquire whether there may not be some error in this estimate? and if it be possible to construct a ship canal of these dimensions at a less sum than $12,-500 per mile? This estimate is but a little more than one half the cost of the construction of the Chenango Canal with wood locks, is less than half the cost of the construction of the Utica and Schenectady Railroad, and, if I am rightly informed, about one fourth of the cost of the Railroads that lead in three directions from the city of Boston. M.

We publish the remarks and queries of M, leaving the answer to those who have the requisite knowledge and disposition to give it.

From the Railroad Journal.

ENGINE.

A powerful *fire engine* has recently been exhibited in this city, by Mr. Thomas A. Chandler, of St. Lawrence county.

The peculiarities of this engine are, that it has four pumps or pistons, and two brakes, which may be worked together, or one at a time, as may be convenient. The piston rods are worked by *rack and pinions*, and against friction rollers, instead of with chains, as in the ordinary engine.

Mr. Chandler's Engine has been tried twice in this city—first in Broadway, opposite the City Hall, next in the corporation yard.

The first trial was made without any arrangement to man it, and therefore was worked by boys and such as were disposed to take hold of it; and from this and other causes, it did not work satisfactorily to its owner, who found, on taking it apart, that a quantity of *gravel had, by some means*, got into the machine, which probably prevented it from having a *fair* trial.

At the second trial, water was thrown 75 feet high with twelve men, and through 104 feet of hose, 122 feet *beyond the pipe*, with 16 men. In both instances a $\frac{7}{8}$ inch stream was thrown at the latter trial.

GREAT SOUTH CAROLINA RAILROAD.—The project of constructing a Railroad from Charleston to the Mississippi valley—extending it to Cincinnati—is awakening very general attention through the region of country to be effected. A large convention is now in session at Knoxville, upon the subject. Georgia sent a delegation to the convention; but although they knocked at the door, the South Carolinians would not "let them enter"—except as spectators. They will not allow Georgia to have any thing to do in the matter.

METEOROGICAL RECORD,

For the month of November, 1835, kept at Avoylle Ferry, Red River, La., (Lat. 31° 10′ N., Long. 91° 59′ W.,) by P. G. VOORHIES.

NOVEMBER.

Days.	Morn.	Noon.	Night.	Wind.	Weather.	REMARKS.
1	52	64	60	calm	clear	
2	55	70	62	..	..	foggy morning
3	60	71	69	SE	cloudy	rain all night
4	65	64	64	calm	..	heavy rain all day and all night
5	64	65	65	SE	..	clear evening
6	58	65	61	calm	clear	
7	52	78	68	..	cloudy	
8	64	67	66	..	..	a little rain
9	62	66	64	..	..	rain at noon—clear evn'g
10	65	72	68	S	..	heavy rain and thunder all day
11	44	49	49	N	clear	
12	41	51	48	NW	..	first white frost
13	42	66	62	NE	..	. .
14	58	70	67	SE	cloudy	heavy rain all night
15	57	78	74	S	..	
16	58	64	60	calm	..	rain all day and all night
17	55	68	59	..	..	. . . .
18	58	76	74	SW	..	
19	74	79	75	..	..	high wind at noon
20	71	78	66	calm	..	showers—rain at noon
21	57	59	56	NE	..	. all night
22	47	49	46	N	..	rain at noon and evening
23	42	50	45	NW	clear	
24	36	45	42	N	..	
25	32	47	46	NE	..	
26	38	50	48	calm	..	cloudy evening
27	41	43	42	..	cloudy	drizzling rain all day
28	38	54	43	..	clear	
29	32	51	48	..	..	heavy white frost
30	34	68	62	..	..	

Red River fell this month 3 feet—below high water mark 5 feet 11 inches.

METEOROLOGICAL RECORD.

For the month of December, 1835, kept at Avoylle Ferry, La., (Lat. 31° 10′ N., Long. 91° 59′ W.,) by P. G. VOORHIES.

DECEMBER.

Days.	Morn.	Noon.	Night.	Wind.	Weather.	REMARKS.
1	49	64	61	calm	clear	
2	50	65	63	NE	..	
3	51	70	68	SE	.	cloudy and calm in the afternoon.
4	55	75	67	calm	..	Red River rising
5	52	59	53	N	cloudy	clear at noon
6	24	64	56	..	..	white frost
7	38	67	53	calm	..	
8	51	59	52	..	clear	
9	53	62	56	..	cloudy	rain all day and all night
10	54	50	50	N	..	. . . .
11	36	50	41	calm	..	
12	33	51	50	..	clear	heavy white frost
13	32	60	54	..	..	. .
14	40	62	59	..	..	white frost—cloudy in the afternoon
15	39	67	62	..	..	
16	41	68	62	..	..	white frost
17	46	72	67	..	cloudy	foggy morning
18	60	72	68	S	..	clear at noon and rain all night
19	67	74	68	SE	..	
20	58	76	54	NW	..	rain in the morning and clear in the evening
21	46	62	58	calm	clear	
22	43	53	49	..	..	heavy white frost
23	32	56	52	..	..	
24	52	58	65	SE	cloudy	rain all night
25	53	62	56	calm	..	light showers all day
26	54	64	57	..	..	Red River on a stand
27	49	55	51	..	..	clear at noon
28	44	61	58	..	clear	light white frost
29	42	48	62	..	..	Red River falling
30	45	70	66	..	..	
31	42	68	62	..	..	white frost

Red River rose this month 2 feet 3 inches—below high water mark 3 feet 8 inches.

WILLIAM ATKINSON, Rochester, New-York, Real Estate Broker, buys and sells on Commission, FARMS in the County of Monroe, and attends to the Collection of Mortgages.

Persons desirous of purchasing Farms in that fertile region, will do well to call on him. 6t*

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* A bi-equal third is thus obtained;—from one perfect octave deduct one perfect third, and divide the remainder into two equally sharp thirds.

† A tri-equal fifth is thus obtained;—divide the interval included by a perfect fifth from the key-note, and the second perfect octave above the perfect third from the same key-note, into three equally flat fifths which are tri-equal fifths.

☞ Postage on the New York Farmer.—We have had several complaints that Postmasters require our subscribers to pay postage for *four*, instead of *two*, sheets on the Farmer. Why is this so? It is printed on *two* sheets, and in *octavo* form, or 16 pages on the sheet—and of course to be charged *only* for *two* sheets.

We received the following letter in reply to one directed to a Postmaster who, we were informed, charged for *four sheets*. We give it with the hope that he will satisfy himself that he cannot charge *legally* but *one and a half cents* for *under*, and two and a half cents per sheet, of 16 *octavo pages*, for *over* one hundred miles, even if it should contain *two* books as large as a Bible. We only ask *fair play*—and *that* we shall endeavor to have.

Post-Office, B——, N. J.
July 27, 1836.

Dear Sir—I have just received your note in regard to charging postage on your Farmer.

For some months I have not looked over the work, but I did so several times in its early being, and I recollect the pages were about 32—of course 4 sheets by law.

I am not regulated by what the printers put on the covers of their works. You might print a book as big as the bible, on a *single sheet* of paper, if you choose. However, I shall look into the next number.

Respectfully yours.

For D. K. Minor, Esq., New York.

New arrangement.—I take pleasure in announcing to the readers of my periodicals that I have taken as a partner, in the business pertaining to them, Mr. George C. Schaeffer, a gentleman of education and a practical engineer.

Mr. Schaeffer will hereafter have the principal charge of the editorial department of the Journal, Mechanics' Magazine and New York Farmer—in the discharge of which duties he has for several months past taken an active part—and, as we have reason to believe, much to the satisfaction of our readers and patrons.

With our united efforts we hope to render the periodicals worthy of a more extensive circulation.

D. K. Minor.

New-York, July 2nd, 1836.

The undersigned has the pleasure of announcing to his friends and to the readers of the Railroad Journal, Mechanics' Magazine and New-York Farmer, that he has become joint proprietor and editor with Mr. D. K. Minor, who has conducted these journals since their commencement.

In making this announcement the undersigned begs leave to waive the formality of making the usual protestations and claims to favor further than to state that the perseverance and zeal with which these journals have heretofore been conducted are guaranteed to them on the part of Mr. Minor—while he hopes by his own endeavors to add to their usefulness, his connexion with them for the last six months having already introduced him to the routine of business.

His family circumstances being such as to forbid the pursuit of the profession out of the city, will not prevent him from continuing his favorite studies to the interest and benefit of others.

Should he succeed, his most earnest desires will be gratified.

George C. Schaeffer.

July 1st, 1836.